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ABSTRACT

The Arizona Vocational Education Act of 1982 established countywide planning councils composed of representatives of secondary schools, community colleges, proprietary schools, employment and training, government, business and industry to coordinate the vocational education planning process. This progress report reviews the councils' implementation of 1986 objectives, outlines objectives for 1987, and offers recommendations. After section I provides an executive summary of recommendations, section II introduces the 5-year plan for county vocational education adopted for 1984 to 1989. Section III reports on progress related to the articulation of programs and resources; opportunities for coordination between public and private schools; labor market demand and program priorities; placement, follow-up, and program evaluation; career information and guidance; program improvements; and funding priorities. Section IV presents objectives for 1987 with respect to the same areas. Section V offers recommendations related to: (1) the removal of barriers to articulation; (2) consideration of rural community needs; (3) funding of career guidance and placement systems; (4) funds earmarked for county planning; (5) incentives for business and industry support and participation; (6) the Arizona Department of Education's funding priorities; (7) basic skills education; (8) student follow-up; (9) removal of artificial distinctions in industrial education programs; (10) updating of home economics programs; and (11) evaluation of vocational education standards. Appendices include inventories of training programs by county and employment forecasts for Arizona. (EJV)

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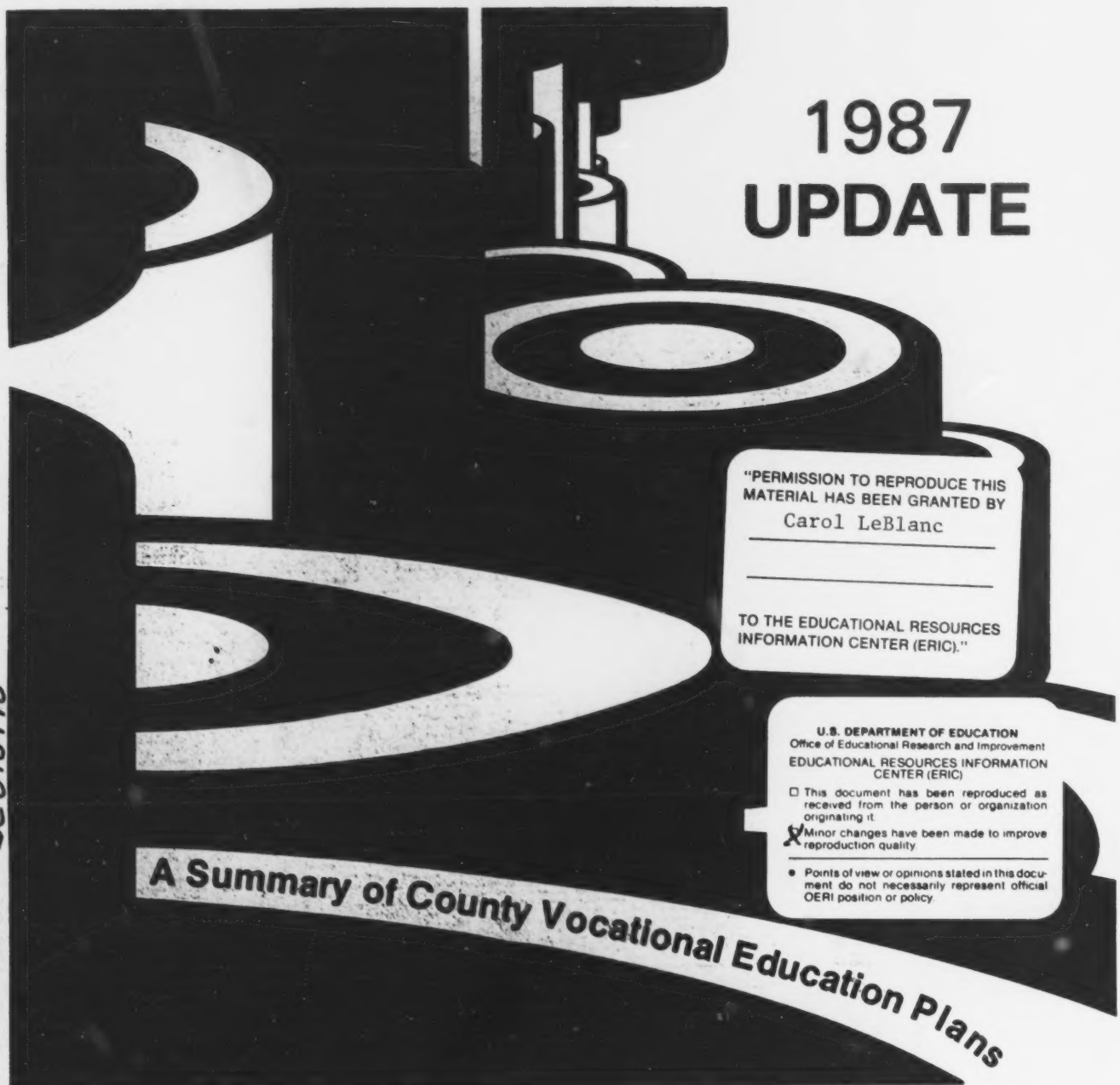
ARIZONA PERSPECTIVES ON VOCATIONAL EDUCATION

1984-1989



1987 UPDATE

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A Summary of County Vocational Education Plans

JC 870 178

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ARIZONA PERSPECTIVES ON VOCATIONAL EDUCATION

1984 - 1989

1987 UPDATE

A SUMMARY OF COUNTY VOCATIONAL EDUCATION PLANS

SUBMITTED TO THE

ARIZONA STATE BOARD OF DIRECTORS FOR COMMUNITY COLLEGES

AND THE

ARIZONA STATE BOARD OF EDUCATION

FOR PRESENTATION TO THE

ARIZONA STATE LEGISLATURE

JANUARY 1987

FOREWARD

The Arizona Perspectives on Vocational Education 1987 Update is the third update of the five year statewide summary of the county plans (1984-89). The county vocational education plans are management tools for Governing Boards and administrators to promote the development and improvement of vocational education opportunities.

The Arizona State Board of Directors for Community Colleges and the Arizona Community Colleges greatly appreciate the dedicated participation of Vocational Education Planning Council members across the state. These high school and college administrators and representatives of business/industry, private schools, governmental agencies, community based organizations and universities have been responsible for both developing and implementing the plan objectives. Special thanks are also due to faculty and staff members who contributed many hours of work while implementing portions of the plan.

Comments on this plan may be addressed to:

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I. EXECUTIVE SUMMARY

The Arizona Vocational Education Act of 1982 established countywide planning councils to coordinate the vocational education planning process for county planning areas. The ten county Vocational Education Planning Councils are very proud of the progress made in implementing their plans.

The planning councils are composed of representatives of secondary schools, community colleges, proprietary schools, employment and training, government, and business/industry. During the 1985-86 academic year, the planning councils implemented their 1986 objectives and developed annual plans for 1987.

The county planning councils are especially proud of the progress made in articulating secondary and postsecondary programs, sharing resources, and eliminating unnecessary duplication. Substantial progress has also been made in using labor market demand to determine program priorities. In addition, planning groups have also addressed issues such as placement, follow-up, program evaluation, career information and guidance, program improvements, and funding priorities.

In addition to locally developing and implementing planning objectives, the planning councils also recommend that the:

1. Joint Coordinating Committee recommend to the State Board of Vocational and Technical Education and the State Board of Directors for Community Colleges that each accept the vocational teacher certification of the other board to facilitate articulation.

2. Arizona Legislature simplify intergovernmental agreements to enable schools/colleges/agencies to more easily enter into articulation agreements.

3. State Agencies and the Legislature consider the problems of rural communities when making decisions and include rural representatives on state committees so that rural needs and issues can be identified and addressed before final decisions are made.

4. Arizona Department of Education increase funds for:

   a. counseling eighth grade students to explore career options and develop a secondary education program.

   b. providing career guidance for students in grades 7-10.

   c. training counselors in the skills of vocational and career counseling.

   d. providing regional job placement services or systems.

5. Arizona Department of Education continue to provide the County Planning Area Priority (25%) funds.

6. Arizona Department of Education alter the methodology for determining the base amount of the County Planning Priorities funds by allocating the

base amount to the County Planning Councils based on the number of counties being served by each Planning Council. (This alteration would continue to encourage counties to participate in county planning without penalizing counties that are working together in one planning council.

7. Arizona Legislature provide incentives to business and industry to encourage support and participation in vocational education by:

   a. providing tax credits for the donation of equipment to public vocational education programs meeting labor market needs in high demand and/or emerging occupations.

   b. providing tax credits for the donation of business or industry equipped space to conduct vocational education programs that are open to the general public as well as the employees of participating firms.

8. Arizona Department of Education improve the methodology for developing its funding priority list used for funding secondary vocational programs by:

   a. grouping program clusters more appropriately and consistently.

   b. developing and disseminating adequate documentation of the funding priority list.

   c. citing sources of the information and obtaining review and concurrence from the original data sources to ensure that the information is appropriately interpreted and used.

   d. identifying job opportunities in agriculture/horticulture that are not surveyed by the original data source.

9. School districts use practical applications to teach theoretical concepts in general education mathematics and English/Reading/Communications courses.

10. School districts accept applied mathematics and English/Reading/-Communications courses for graduation credit requirements.

11. Arizona Department of Education continue to improve its training follow-up of vocational students in order to provide local administrators with information for use in program evaluation.

12. State Board of Vocational and Technical Education initiate a study to investigate the practicality of combining Technical and Industrial Education and Industrial Arts under one umbrella such as "Industrial Technology". This would provide a simple sequence of courses leading to entry-level occupations.

13. Arizona Department of Education and school districts change the name of the home economics program to one that more accurately reflects the substance of those programs as related to today's society and needs.

14. State Board of Vocational and Technical Education initiate an independent statewide survey of vocational teachers to evaluate the proposed secondary vocational program standards. The survey should preserve teacher anonymity and solicit recommendations as to which standards are deemed important for quality programs and which, if any, should be eliminated.

II. INTRODUCTION

The Arizona Vocational Education Act of 1982 (Senate Bill 1106) requires community college districts to coordinate the vocational education planning process for countywide planning areas. The planning councils are composed of representatives from secondary schools, community colleges, proprietary schools, employment and training, government, and business/industry.

The legislation directs the planning effort to focus on:

1. labor market needs
2. analysis of possible program duplication
3. guidelines for the interface of secondary and postsecondary programs
4. cooperative programming among the providers of vocational education and employment training, and
5. priorities for operational and capital funding with methods to meet the funding needs.

The 1987 update of Arizona Perspectives on Vocational Education is the third annual update of the five year summary of county vocational education plans adopted for 1984-89. This document includes an update of progress made on several planning issues and establishes objectives for 1987-88. The legislation describes these plans as "management tools" for secondary and postsecondary training providers. The plans provide a framework for improvement of vocational education opportunities and cooperative programming. The plans do not, however, supercede the plans of local educational and training institutions.

The planning councils discussed several topics in 1986 including:

1. articulation of programs and resources
2. opportunities for coordination between public and private schools
3. legislation affecting county planning
4. labor market demand and program priorities
5. student follow-up, placement, and program evaluation
6. career information and guidance
7. program improvements
8. use of the 25 percent monies earmarked for county planning

The ten county planning councils are very proud of the progress made in articulating secondary and postsecondary programs, sharing resources and of the good working relationships that have developed. The county planning coordinators and planning participants deserve much of the credit for the implementation progress made statewide. Several hundred people have been involved in the planning process and/or in plan implementation activities.

The Arizona State Board of Directors for Community Colleges and the Arizona Community Colleges established and provided federal, state, and local funding for a statewide project to coordinate county planning and program articulation. In addition to contributing funds to support statewide coordination of the process, the state's community colleges also used their resources to support their local planning processes and implementation activities.

The costs of articulating local vocational education programs have also been shared. Contributors have included secondary schools, community colleges, the Arizona Department of Education, and the State Board of Directors for Community Colleges.

Special thanks is due to the dedicated administrators and researchers who coordinated the planning processes, chaired the meetings, and prepared the plans for their respective planning areas.

Apache County:	Ms. Katie Powell Vocational Education Director Chinle Unified District
	Mr. Jack Mowrer Director of Vocational Technology Navajo Community College
Cochise County:	Dr. Tom Waddell Director of Occupational Education Cochise College
	Dr. Harold Thomas, (Former Chairman) Director of Vocational Education Services Cochise County
Gila, Graham and Greenlee Counties:	Dr. Dorine Chancellor Associate Dean of Vocational Education Eastern Arizona College
Maricopa County:	Ms. Bertha Landrum District Director of Occupational Education Maricopa Community College District
	Ms. Mary Day Institutional Research Specialist Maricopa Community College District
Mohave County:	Dr. Vincent M. Salmon (Acting Chairman) Dean of Instruction Mohave Community College
	Mr. Harold Byfield (Former Chairman) Dean of Occupational and Community Services Mohave Community College
Navajo County:	Dr. Arvin Palmer Vice President/Dean of Instruction Northland Pioneer College

Pima and Santa Cruz Counties:	Dr. Anthony Thele Executive Director of Occupation Education Pima Community College
	Mr. David Padgett Occupational Education Assessment Specialist Pima Community College
Pinal County:	Mr. Larry Cline Dean of Occupational Education and Economic Development Central Arizona College
Yavapai County:	Dr. Joe Birmingham (Acting Chairman) Vice President for Instruction and Student Services Yavapai College
	Dr. Roger Bober (Former Chairman) Dean of Occupational Education Yavapai College
Yuma and La Paz Counties:	Mr. Ernest Lopez Associate Dean of Instruction Arizona Western College

(Note: Coconino County did not conduct a countywide planning process or prepare an annual county plan as of October 1986).

* * *

III. PROGRESS REPORT: Implementation of 1986 Objectives

A. ISSUE: ARTICULATION OF PROGRAMS AND RESOURCES

Exciting progress has been made in articulating programs and resources since passage of the Arizona Vocational Education Act of 1982 (SB1106). Articulation is the coordination of programs so that students can progress without duplication of time, effort, or expense to themselves or taxpayers. Although rural colleges and high schools frequently pooled faculty, facilities, and equipment prior to 1982, these resources were not shared in metropolitan counties. Since 1982, resource coordination has increased substantially in both metropolitan and rural counties. Perhaps even more impressive than the increase in resource coordination, is the increase in agreements granting college course credit for mastery of competencies acquired in high school.

College course credit can be awarded to students for classes taken while in high school when students demonstrate mastery of competencies for equivalent college courses. To ensure course equivalency, high school and college teachers meet together to agree upon the competencies that make some high school courses equivalent with college classes.

Hundreds of articulation agreements are currently in effect in Arizona. Maricopa County, for example, has 172 high school-community college articulation agreements. Yavapai College has developed articulation agreements with every high school in Yavapai and Coconino Counties. Navajo County governing boards recently approved countywide agreements between Northland Pioneer College and participating Navajo County secondary schools. Pima, Santa Cruz, Yuma, La Paz, Pinal, Graham, and Gila Counties all made significant progress in articulating programs and resources during the past year.

Arizona universities and community colleges have also been working together to articulate their programs. Each year a course equivalency guide is produced that is used by counselors and students to determine which courses will transfer to another institution. Community colleges are also developing articulation agreements with the state's universities. Arizona State University and the Maricopa Community Colleges, for example, are developing articulation agreements for a variety of university majors. These agreements specify the MCCCD courses that can be taken in lieu of ASU courses for a given degree.

This progress report on articulation has been divided into two sections, Articulation Agreements and Articulation-Related Activities. The Articulation Agreements have been divided into six types:

1.	Contracting	the purchase of education and training that would not otherwise be available.
2.	Course Credit	the granting of college credit for mastery of competencies which comprise an equivalent college course.

3.	Occupational Credential Acceptance	the granting of college credit for having a valid credential.
4.	Resource Coordination	the pooling of faculty, facilities, and equipment.
5.	Joint Program Development	cooperative development of programs by high school and college administrators.
6.	Regionalization	coordination of all public occupational education resources within a geographic area.

Items within these categories are primarily arranged in alphabetical order by college name since articulation is generally being coordinated by individual community colleges with high schools in their service areas. Items coordinated by high schools or other training groups and with limited or no community college involvement are listed at the end of each category. Names of the cooperating organizations have been highlighted in the Articulation section of the progress report.

ARTICULATION AGREEMENTS

1. CONTRACTING:

Purchase of education and training that would not otherwise be available.

- Maricopa Skill Center provides vocational training for the occupations of Electronics Fabricator, Machinist, Meat Cutter, and Welder to students from Marcos de Niza and Tempe High Schools. Maricopa Skill Center also contracts to provide vocational training for high risk Phoenix Union High School District students from the Bostrom and Desirata Alternative High Schools.

- Many Arizona secondary schools contract with proprietary schools for cosmetology training.

2. COURSE CREDIT:

The granting of college credit for mastery of the competencies which comprise an equivalent college course.

a. HIGH SCHOOL - COMMUNITY COLLEGE ARTICULATION

This section is organized by college name. Specific community college course titles and numbers are listed for all courses covered by operational articulation agreements. Less specific information is given for articulation projects under development.

Users should avoid comparing the number of articulation agreements developed by various institutions since neither the numbers of agreements nor the models used are comparable. In Maricopa County, for example, each community college has developed articulation agreements primarily with the high schools in its service area. In other counties, such as Pima, Pinal, or Navajo, articulation of courses is a countywide effort that will ultimately result in similar but separate agreements with all or most of the schools in their respective counties.

- Arizona Western College agreed to award course credit for the following courses to Parker Unified School District graduates for:

College Courses		Credits
CIS 100	Introduction to Data Processing	3
CIS 150	Computer Programming - Basic	3
CIS 170	Introduction to Microcomputer Business Systems	3
BUA 100	Survey of Business	3
BUA 110	Math for Business	3
OAD 111	Beginning Typing	3
OAD 122	Intermediate Typing	3

College Courses		Credits
OAD 213	Advanced Typing	3
ACC 120	Income Tax Procedures	3
ACC 121	Accounting Principles	3
ECN 240	Principles of Macroeconomics	3
REA 180	Principles of Real Estate	3
TEC 17	Automotive Fundamentals	3

- **Arizona Western College** and **Yuma High School District** developed an umbrella agreement to award college credit for high school courses that the college determines to be equivalent based on a comparison of course competencies.

  Eight articulated courses are planned for Fall 1986. They are:

College Courses		Credits
TEC 101	Air Conditioning/Refrigeration I	3
TEC 102	Air Conditioning/Refrigeration II	3
TEC 104	Industrial Welding I	5
TEC 105	Industrial Welding II	5
TEC 221	Physical Metallurgy	4
TEC 220	Nondestructive Testing	3
TEC 185	Technical Drawing Interpretation	3
TEC 130	Electrical Fundamentals	3

- **Arizona Western College** and **Yuma High School District** both shared course competencies with Job Training Partnership Act (J.T.P.A.) training providers.

- **Cochise College** agreed to award college credit to Buena High School students for the following courses:

College Courses		Credits
WLD 105	Welding Oxyacetylene	3
AVN 101	Aviation, Stage One Ground School	5
HLT 110	Nursing Assistant	6

- **Glendale Community College** has agreed to award course credit for the following courses to graduates from **Deer Valley Unified District**:

College Courses		Credits
ADA 114	Graphics Printing Processes	3
ADA 214	Graphics Camera Techniques	3
ART 181	Graphic Design I	3
AUT 114AA	Diesel Engine Theory	3
AUT 214	Passenger Car & Light Truck Diesel	3
DFT 204	Computer Aided Drafting	3

College Courses		Credits
ELT 101	Mathematics for Electronics	3
ELT 103	Introduction to Electronics	4
FON 141	Nutrition	3
GTC 203	Machine Tools	3
MET 101	Machine Shop Theory I	3
OAS 102	Typing II	3
OAS 109	Shorthand I	3
OAS 209	Shorthand III	3
WLD 101	Welding I	3
WLD 201	Welding II	3

- Maricopa Technical Community College agreed to award course credit for the following courses to high school graduates:

Deer Valley Unified District

College Course		Credits
HLR 221	Cardiopulmonary Resuscitation	3
HVA 111	Principles of Air Conditioning Systems	4
NUR 101AA	Fundamentals of Nursing	5.5
NUR 118	Psychiatric Nursing I	1
RES 100	Respiratory Care Fundamentals I	Variable

Mesa Unified School District

ADA 102	Advertising Production Methods	3
HLR 221	Cardiopulmonary Resuscitation	3
HVA 111	Principles of Air Conditioning Systems	4
HVA 122	Electrical Circuitry & Controls	4
NUR 101AAA	Fundamentals of Nursing	5.5
NUR 118	Psychiatric Nursing I	1
RES 100	Respiratory Care Fundamentals I	Variable
WLD 105	Gas Welding	5
WLD 106	Arc Welding	

Paradise Valley Unified School District

ADA 102	Advertising Production Methods	3
HLR 221	Cardiopulmonary Resuscitation	1
WLD 105	Gas Welding	5
WLD 106	Arc Welding	5

Scottsdale Unified School District

BPC 130	Microcomputer Word Processing	1
CIS 105	Survey of Data Processing	3
CIS 116	Business Basic	3
DFT 121	Technical Drafting I	3

College Courses		Credits
DFT 122	Technical Drafting II	3
HLR 221	Cardiopulmonary Resuscitation	1
OAS 130	Microcomputer Word Processing	1
RES 100	Respiratory Care Fundamentals I	Variable
WLD 105	Gas Welding	5
WLD 106	Arc Welding	5

Phoenix Union High School District

DFT 121	Technical Drafting I	3
DFT 122	Technical Drafting II	3
HLR 221	Cardiopulmonary Resuscitation	1
NUR 101AA	Fundamentals of Nursing	5.5
NUR 118	Psychiatric Nursing I	1
RES 100	Respiratory Care Fundamentals I	Variable
WLD 105	Gas Welding	5
WLD 106	Arc Welding	5

- Mesa Community College agreed to award course credit for the following courses to high school graduates:

College Courses		Credits
AGS 164	Plant Science	3
ANS 110	Introduction to Animal Science	3
AUT 101	Internal Combustion Engines Theory	3
AUT 102	Automotive Chassis Theory	3
CFS 176	Child Development	3
CFS 201	Participation in Child Care & Nursery	4
CFS 212	Creative Activities for the Young Child	3
CIS 105	Survey of Data Processing	3
CIS 116	Business Basic	3
CIS 158	COBOL I	3
DFT 100	Introduction to Drafting	3
DFT 109	Introduction to Electro-Mech'l Drafting	3
DFT 121	Technical Drafting I	3
DFT 127	Construction Drafting I	3
GTC 101	Machine Shop Theory I	3
GTC 203	Machine Tools	3
MET 150	Machining Practices I	8
OAS 250	Word Processing Concepts I	3
OAS 261	Word Processing Applications I	3
WLD 101	Welding I	3
WLD 201	Welding II	3

Scottsdale Unified School District

GTC 101	Machine Shop Theory I	3
GTC 203	Machine Tools	3

College Courses		Credits
MET 150	Machining Practices I	8

Tempe Unified School District

OAS 261	Word Processing Applications I	3

- **Northland Pioneer College** provided copies of their occupational program competencies to each secondary or unified school district. The Navajo Planning Council selected areas for articulation and established countywide faculty committees to work on their respective areas. Articulation agreements were completed with all participating districts and board approvals were scheduled for August 1986. Northland Pioneer College agreed to award course credit for the following courses to the high schools identified:

Alchesay High School

College Courses		Credits
AUT 100	Automotive Mechanics for Driver	3
AUT 105	Internal Combustion Engine	4
AUT 220	Auto Tune-up	4
BOC 100	Beginning Carpentry	3
BOC 105	Building Construction I	3
BOC 115	Masonry I	3
BOC 140	Blueprint Reading	3
BOC 150	Housewiring I	3
BOC 201	Cabinet Making	3
OED 110	Typing I	3
OED 111	Typing II	3
OED 120	Beginning Gregg Shorthand	4
OED 121	Intermediate Gregg Shorthand	4
WLD 100	Basic Oxyacetylene and Arc Welding	3
WLD 120	Oxy Welding I	3
WLD 126	Arc Welding II	3
WLD 220	Arc Welding III	3
WLD 225	TIG Welding I	3

Blue Ridge High School

College Courses		Credits
AUT 100	Auto Mechanics for the Driver	3
AUT 105	Internal Combustion Engine	4
AUT 160	Carburetor & Fuel Systems	4
AUT 180	Auto Chassis & Brakes	4
AUT 220	Auto Tune-Up	4
BOC 100	Beginning Carpentry	3
BOC 105	Building Construction	3

College Courses		Credits
BOC 140	Blueprint Reading	3
BOC 201	Cabinet Making	3
CSC 100	Introduction to Computer Science	3
OED 110	Typing I	3
OED 111	Typing II	3
OED 120	Beginning Gregg Shorthand	4

Holbrook High School

AUT 100	Auto Mechanics for the Driver	3
AUT 105	Internal Combustion Engine	4
AUT 160	Carburetor & Fuel Systems	4
AUT 180	Auto Chassis & Brakes	4
AUT 220	Auto Tune-Up	4
BOC 100	Beginning Carpentry	3
BOC 105	Building Construction	3
BOC 115	Masonry I	3
BOC 140	Blueprint Reading	3
BOC 150	Housewiring I	3
BOC 201	Cabinet Making	3
CSC 100	Introduction to Computer Science	3
OED 110	Typing I	3
OED 111	Typing II	3
OED 120	Beginning Gregg Shorthand	4
OED 121	Intermediate Gregg Shorthand	4
WLD 100	Basic Oxyacetylene & Arc Welding	3
WLD 120	Oxygen Welding I	3
WLD 125	Arc Welding I	3
WLD 126	Arc Welding II	3
WLD 220	Arc Welding III	3
WLD 225	TIG Welding I	3

Joseph City High School

BOC 100	Beginning Carpentry	3
BOC 140	Blueprint Reading	3
BOC 201	Cabinet Making	3
BUS 117	Small Business & Office Accounting I	3
CSC 100	Introduction to Computer Science	3
OED 110	Typing I	3
OED 111	Typing II	3
OED 120	Beginning Gregg Shorthand	4
WLD 100	Basic Oxyacetylene & Arc Welding	3
WLD 120	Oxygen Welding I	3
WLD 125	Arc Welding I	3

Monument Valley High School

AGR 125	Basic Horticulture	3
AGR 110	Animal Industry	3

College Courses		Credits
AUT 100	Auto Mechanics for the Driver	3
AUT 105	Internal Combustion Engine	4
AUT 220	Auto Tune-Up	4
BOC 100	Beginning Carpentry	3
BOC 201	Cabinet Making	3
CSC 100	Introduction to Computer Science	3
OED 110	Typing I	3
OED 111	Typing II	3
OED 120	Beginning Gregg Shorthand	4
WLD 100	Basic Oxyacetylene & Arc Welding	3

Show Low High School

AUT 100	Auto Mechanics for the Driver	3
AUT 105	Internal Combustion Engine	4
AUT 160	Carburetor & Fuel Systems	4
AUT 180	Auto Chassis & Brakes	4
AUT 220	Auto Tune-Up	4
BOC 100	Beginning Carpentry	3
BOC 105	Building Construction	3
BOC 201	Cabinet Making	3
CSC 100	Introduction to Computer Science	3
OED 110	Typing I	3
OED 111	Typing II	3
OED 120	Beginning Gregg Shorthand	4
OED 121	Intermediate Gregg Shorthand	4
WLD 100	Basic Oxyacetylene & Arc Welding	3
WLD 120	Oxygen Welding I	3
WLD 125	Arc Welding I	3
WLD 225	TIG Welding I	3

Snowflake High School

AGR 125	Basic Horticulture	3
AGR 110	Animal Industry	3
AUT 100	Auto Mechanics for the Driver	3
AUT 105	Internal Combustion Engine	4
AUT 160	Carburetor & Fuel Systems	4
AUT 180	Auto Chassis & Brakes	4
AUT 220	Auto Tune-Up	4
BOC 100	Beginning Carpentry	3
BOC 140	Blueprint Reading	3
BOC 201	Cabinet Making	3
CSC 100	Introduction to Computer Science	3
OED 110	Typing I	3
OED 111	Typing II	3
OED 120	Beginning Gregg Shorthand	4
OED 121	Intermediate Gregg Shorthand	4
OED 125	Sten. ABC Shorthand	4

College Courses		Credits
OED 126	Intermediate Steno. ABC Shorthand	4
WLD 100	Basic Oxyacetylene & Arc Welding	3
WLD 120	Oxygen Welding I	3
WLD 125	Arc Welding I	3
WLD 126	Arc Welding II	3
WLD 220	Arc Welding III	3

Winslow High School

AUT 100	Auto Mechanics for the Driver	3
AUT 105	Internal Combustion Engine	4
AUT 160	Carburetor & Fuel Systems	4
AUT 180	Auto Chasis & Brakes	4
AUT 220	Auto Tune-Up	4
BOC 100	Beginning Carpentry	3
BOC 105	Building Construction	3
BOC 115	Masonry I	3
BOC 140	Blueprint Reading	3
BOC 150	Housewiring I	3
BOC 201	Cabinet Making	3
CSC 100	Introduction to Computer Science	3
OED 110	Typing I	3
OED 111	Typing II	3
OED 120	Beginning Gregg Shorthand	4
OED 121	Intermediate Gregg Shorthand	4
WLD 100	Basic Oxyacetylene & Arc Welding	3
WLD 120	Oxygen Welding I	3
WLD 125	Arc Welding I	3

- Phoenix College agreed to award course credit for the following courses to graduates from the Phoenix Union High School District:

College Courses		Credits
CLS 105	Phlebotomy Techniques	7
DAE/DHE 101	Basic Operatory Procedures	3
DFT 121	Technical Drafting I	3
DFT 122	Technical Drafting II	3
FON 116	Commercial Food Preparation I	3
SLG 220	Fingerspelling	3

- Pima Community College has agreements with Amphitheater School District, Flowing Wells School District, Marana School District, Sunnyside School District, and Tucson Unified School District for the acceptance of credit in Food Services. The courses include:

College Courses		Credits
RCF 101	Introduction to Restaurant and Food Service	3
RCF 102	Food Service Specialties I/Culinary Preparation	3
FFI 101	Restaurant Operations and Sanitation	3
IFS 100	Institutional Food Safety and Sanitation	2

Pima Community College also has a course credit agreement in Electronics with Sunnyside School District. The articulated courses include:

College Courses		Credits
ETR 001	Introduction to Electronics	3
ETR 100	Fundamentals of Electronics	3

- Rio Salado Community College agreed to award course credit for the following courses to graduates from the Deer Valley High School District:

CRP 102AA	Concrete Forms: Building Layout	1
CRP 102AB	Concrete Forms: Residential Footing	1
CRP 102AC	Concrete Forms: Footing & Bolt Layout	1
CRP 102AD	Concrete Forms: Basic Wall Forms	1
CRP 102AE	Concrete Forms: Circular Wall Forms	1
CRP 102AF	Concrete Forms: Column Form	1
CRP 102AG	Concrete Forms: Spamdrel Beam	1
CRP 102AH	Concrete Forms: Deck Forms & Shoring	1
CRP 102AI	Concrete Forms: Concrete Stair Forms	1
CRP 102AJ	Concrete Forms: Tilt-up Construction I	1
CRP 102AK	Concrete Forms: Tilt-up Construction II	1
CRP 102AL	Concrete Forms: Bridge Pier Column	1
CRP 102AM	Concrete Forms: Flatwork	1
CRP 102AN	Concrete Forms: Culverts, Headwall & Wingwalls	1
CRP 102AO	Concrete Forms: Concrete Wall Blockout	1
CRP 102AP	Concrete Forms: Gang Forms	1
CRP 102AR	Concrete Forms: Retaining Wall Footing	1
CRP 103AA	Framing: Basic Wall Framing	1
CRP 103AB	Framing: Wall Layout,Plating & Detailing	1
CRP 103AD	Framing: Floor Joist	1
CRP 103AE	Framing: Gable Roof	1
CRP 103AF	Framing: Hip Roof	1
CRP 103AG	Framing: Intersecting Roof	1
CRP 103AI	Framing: Wood Stairs	1
CRP 103AJ	Framing: Framing Square	1
CRP 103AL	Framing: Advanced Framing Square Application	1
CRP 103AM	Framing: Residential Layout	1
CRP 104AC	Exterior Finish: Canopy	1
CRP 104AE	Exterior Finish: Roof Coverings	1
CRP 104AH	Exterior Finish: Commercial Display	1

College Courses		Credits
CRP 105AA	Exterior Finish: Standard Door Installation	1
CRP 105AC	Exterior Finish: Running Trim	1
CRP 105AG	Exterior Finish: Door Hardware	1
CRP 105AI	Interior Finish: Metal Partitions	1
CRP 105AJ	Interior Finish: Soffit Panel	1
CRP 106AA	Interior Systems: Metal Frame Walls	1
CRP 106AB	Interior Systems: Dry Wall Applications	1
CRP 106AH	Interior Systems: Dry Wall Estimation of Material	1
CRP 106AK	Interior Systems: Suspended Lay-in Ceilings	1
CRP 199AA	Special Projects	1
CRP 199AB	Special Projects	2
CRP 199AC	Special Projects	3
CRP 200WA	Cooperative Education	1
CRP 200WB	Cooperative Education	2
CRP 200WC	Cooperative Education	3
CRP 200WD	Cooperative Education	4

- **Scottsdale Community College** agreed to award course credit for the following courses to graduates from the Scottsdale Unified School District:

College Courses		Credits
ACC 107	Applied Accounting	4
CIS 105	Survey of Data Processing	3
ELT 120	DC and AC Circuits	5
ELT 126	Electronics Fabrication	2
ELT 184	Digital Concepts	2
FON 144	Gourmet Foods	3
HMM 132	Culinary Arts Specialty I	4
HMM 134	Culinary Arts Specialty II	4
HMM 136	Culinary Arts Specialty III	2
HMM 138	Culinary Arts Specialty IV	2
NUR 110	Nursing Science I	10
OAS 101	Typing I	3
OAS 102	Typing II	3
OAS 115	Alphabetic Shorthand	3
OAS 117	Alphabetic Shorthand II	3
TCM 110	Studio Production	3
TCM 180	Television Techniques	4

- **Yavapai College** developed certificates of competency for all occupational programs and disseminated vocational degree information (i.e., program description, goals, pre-admission criteria, course sequence, etc.) to Yavapai County high schools.

- Yavapai College agreed to award course credit for the following courses to graduates of all Yavapai County and the following Coconino County high schools:

Flagstaff and Coconino High Schools

College Courses		Credits
AUT 123	Automatic Hydraulic Brake Systems	2
AUT 127	Introduction to Automotive Mechanics	2
CSE 101	Principles of Programming	1
CSE 143	Programming in Basic	3
ELT 120	Fundamentals of Electronics	4
ELT 122	Fundamentals of Electronics II	4
ITC 141	Construction Technology I	5
ITC 143	Construction Technology II	5
OAD 121	Basic Keyboarding	1
OAD 130	Beginning Typing	3
OAD 131	Intermediate Typing	3
OAD 133	Beginning Shorthand	3

Fredonia Moccasin High School

AUT 123	Automotive Hydraulic Brake Systesm	2
AUT 127	Introduction to Automotive Mechanics	2
ACC 121	Office Accounting	3
ACC 122	Accounting Principles	2
OAD 133	Beginning Shorthand	3
OAD 121	Basic Keyboarding	1
OAD 130	Beginning Typing	3
OAD 131	Intermediate Typing	3
WLD 152	Welding	4

Page High School

ACC 121	Office Accounting	3
AUT 123	Automatic Hydraulic Brake Systems	2
AUT 127	Introduction to Automotive Mechanics	2
ITC 141	Contruction Technology I	5
ITC 143	Construction Technology II	5
OAD 121	Basic Keyboarding	1
OAD 130	Beginning Typing	3
OAD 131	Intermediate Typing	3
OAD 133	Beginning Shorthand	3
WLD 152	Welding	4

Tuba City High School

College Courses		Credits
ACC 121	Office Accounting	3
AUT 123	Automatic Hydraulic Brake Systems	2
AUT 127	Introduction to Automotive Mechanics	2
CSE 101	Principles of Programmming	1
ITC 141	Construction Technology I	5
ITC 143	Construction Technology II	5
OAD 121	Basic Keyboarding	1
OAD 130	Beginning Typing	3
OAD 131	Intermediate Typing	3
OAD 133	Beginning Shorthand	3
WLD 152	Welding I	4

Williams High School

CSE 143	Programming In Basic I	3
OAD 121	Basic Keyboarding	1
OAD 130	Beginning Typing	3
OAD 131	Intermediate Typing	3
ACC 121	Office Accounting	3
ACC 122	Accounting Principles	2

- Yavapai College awards course credit for the following courses to Bradshaw Mountain High School students who take classes at the college through a Facilities Agreement:

Bradshaw Mountain High School

College Courses		Credits
AUT 127	Introduction to Automotive Mechanics	2
DET 098A	Diesel Mechanics I	2
ITM 098D	Machine Shop Principles	2
WLD 113	Basic Welding II	2

- Yavapai College agreed to award course credit for the following courses to graduates of the following schools:

Camp Verde High School

ACC 121	Office Accounting	3

Mingus Union High School

ACC 121	Office Accounting	3

Prescott High School

ACC 121	Office Accounting	3
ELT 120	Fundamentals of Electricity I	4

3. OCCUPATIONAL CREDENTIAL ACCEPTANCE

Granting of college credit for having a valid occupational credential.

- The Glendale Community College Nursing Program grants first semester NUR credits to graduates of the Phoenix Union High School District Practical Nursing Program who have a valid license.

- Maricopa Technical Community College grants first year NUR credits to graduates of the Phoenix Union High School District Practical Nursing Program who have a valid Practical Nursing license.

- Maricopa Technical Community College grants 5 college credits for WLD 208-Advanced Arc Welding to graduates of the Mesa Unified School District, Paradise Valley Unified School District, Phoenix Union High School District, and Scottsdale Unified School District Welding Programs. To receive the credit, graduates must have valid American Welding Society Certification for Structural Steel.

- Mesa Community College grants first year NUR credits to graduates of the Phoenix Union High School District Practical Nursing Program. To receive the credit, graduates must have valid Practical Nursing licenses.

- Phoenix College grants first year NUR credits to graduates of the Phoenix Union High School District Nursing Program who possess a valid Practical Nursing license.

- Pima Community College will pilot the acceptance of credit for Diesel Mechanics program completers at proprietary schools in Pima County. ABC Technical & Trades School is a possible participant in the pilot study. Agreements will be considered at the completion of the pilot study.

- Scottsdale Community College grants first year NUR credits to graduates of the Phoenix Union High School District Practical Nursing Program who possess a valid Practical Nursing license.

4. RESOURCE COORDINATION

Sharing of faculty, facilities, and equipment.

- Arizona Western College and Yuma and Kofa High Schools are articulating eight courses which were listed in the Fall'86 high school schedule and catalog. The participating students will be mainstreamed into regular college classes.

- Arizona Western College and Parker High School are sharing facilities in the areas of Data Processing, Word Processing, and computer applications. Arizona Western College is teaching an articulated Automotive Fundamentals course at Parker High School. In addition,

Parker High School facilities are also being used to teach adults in the areas of Law Enforcement, Fire Science, and Emergency Medical Training.

- **Arizona Western College** purchased land adjacent to **Parker High School** for the purpose of constructing a La Paz County Center to better serve the educational needs of that county. The college will continue to utilize many of the high school facilities to avoid facility duplication.

- **Arizona Western College** taught Emergency Medical Training for the **Buckskin Fire Department** on their reservation. In addition to the Buckskin Fire Fighters, city and county police, school district athletic program staff members, and Parker Fire Fighters also attended. First Aid and Cardiopulmonary Resuscitation were previously offered.

- **Arizona Western College's JTPA Director** worked cooperatively with **Yuma High School District** personnel to target JTPA services for dropouts. AWC developed a questionnaire to be completed by the dropout and Yuma High School District addressed and mailed the materials.

- **Cochise College's Sierra Vista Campus** offers Welding for **Buena High School** students.

- **Cochise College** is teaching a Machine Technology course at **Inland Motors**, a manufacturing firm located in Sierra Vista. Inland Motors built a facility for training and coordinates the use of the facility with **Cochise College**. Both the college and the firm contributed equipment for training. Cochise College offered to teach Buena High School students at Inland Motors.

- **Cochise College** is teaching a Health Technology course and Aviation, Stage One Ground School at **Buena High School** using college faculty. The associate faculty member teaching the aviation course is FAA certified.

- **Eastern Arizona College** offered vocational training for **Thatcher, Pima** and **Safford** High Schools on the EAC campus.

- **Eastern Arizona College's Evaluation Unit** is continuing assessments for all JTPA referrals as well as expanding services into other areas. Vocational funds which are received for the disadvantaged and handicapped support evaluation services throughout the three-county area.

- **Eastern Arizona College** and **Graham County** secondary administrators met to address calendar and scheduling problems. Although they were unable to agree upon a single calendar or schedule, they did reach agreement to resolve a number of differences.

- **Gila Pueblo College** and **Gila County** schools are working together to offer programs in shared facilities. Some secondary schools are using

vocational funds to support training at the community college rather than duplicating facilities and instructors.

- Glendale Community College uses the Deer Valley Vo-Tech Center's Automotive shop to teach two automotive technology courses. The Deer Valley Unified School District and Glendale Community College students study Diesel Engine Theory and Passenger Car and Light Truck Diesel together. The instructor is employed by Glendale Community College. High School students are eligible for up to 6 hours of course credit. College students pay tuition and receive regular college credit.

- Glendale Community College uses the Deer Valley Vo-Tech Center Machine Shop to teach four courses for the GCC Manufacturing Technology Program. Students from the college and the Deer Valley Unified School District study Machine Shop Theory I, Machine Tools and Welding I and II together. The instructors are paid by Glendale Community College. High school students are eligible for up to 12 hours of course credit. College students pay tuition and receive regular college credit.

- Glendale Community College rents classroom space to teach Office Education, Accounting and Nutrition courses at the Deer Valley Vo-Tech Center.

- Maricopa Technical Community College conducted a 4 credit Business Personal Computer Course for 60 youth participating in a Chicanos Por La Causa summer youth program funded by the Job Training Partnership Act.

- Mesa Community College teaches Internal Combustion Engines Theory, Automotive Body Repair, Principles of Air Conditioning Systems, and Electrical Circuitry and Controls for both high school and college students at the Mesa Vo-Tech Center. Instruction is being conducted by dually certified Mesa Vo-Tech teachers.

- Mesa Community College lets Mesa and Scottsdale Unified School District students study Machine Shop Theory I, Machine Tools, and Machining Practices I in its laboratories. The instructor is employed by the Mesa Vo-Tech Center. High school students can receive 8 hours of course credit.

- Mohave Community College and the Colorado City Fire Department developed a cooperative Fire Science Program. Students are sent to the Fire Department for training. The college conducts the instruction and participating high school students receive college credit by articulation.

- Mohave Community College instructors are teaching Accounting and English Literature classes at the Colorado City High School.

- Navajo Community College developed a cooperative agreement with Chinle High School to conduct evening vocational education training for adults.

- Northland Pioneer College and Navajo County High School Librarians met to review support services agreement possibilities for all types of programs.

- Northland Pioneer College, the White Mountain Apache Skill Center, the Fort Apache Timber Company, Pinetop Logging and the Bureau of Indian Affairs are involved in a cooperative project to train log skidders and tree sawyers. The college conducted the training which was supported by Tribal JTPA funds. In the Spring of 1986 a truck driver training component was added.

- Northland Pioneer College and the Whiteriver Apache and Hopi Tribes conducted projects to train workers for the building trades. The college is conducting the training at two different sites. The project was funded by the tribes' JTPA monies. In 1986 the Hopi Manpower project was designed to train plumbers and electrician apprentices.

- Northland Pioneer College and Arizona Public Service continue to participate in a joint project to train apprentices and maintenance staff at the job site. The utility company provided equipment and supplies; the college provided the instruction at the Cholla Generating Station.

- Northland Pioneer College employed two field training specialists to develop cooperative education positions for students and to identify and meet local employer needs by tailoring training to the employer's needs. The training was offered at the business location or in educational facilities.

- Northland Pioneer College (NPC) is working with Northern Arizona University (NAU) Center for Excellence to develop a local unit in Show Low to provide educational courses for local educators. NAU administers the project and pays instructors. NPC houses the NAU coordinator and provides assistance.

- Northland Pioneer College conducted on-site training for Southwest Forest Industry in electronics and on the handling of hazardous materials and emergency medical treatment.

- Northland Pioneer College is conducting introductory automotive courses for Joseph City High School students and community people at night using the high school facility. Students can continue their advanced training at the college site.

- Northland Pioneer College and Show Low and Snowflake High School Districts have a cooperative agreement involving a rehabilitative workshop for trainable mentally handicapped. The college's program teaches coping, housekeeping, and building skills. While the program itself is about three years old, the cooperative arrangement between the schools and the college continues.

- Northland Pioneer College is using the Blue Ridge building trades shop and the Holbrook shop to teach building trades courses.

- Northland Pioneer College utilizes the facilities and hires many secondary school teachers as instructors at Alchesay High School (Whiteriver), Monument Valley High School (Kayenta), and Capps Elementary School (Heber) in both academic and vocational programs.

- Northland Pioneer College and St. Johns and Round Valley High Schools also developed cooperative agreements to conduct evening postsecondary vocational courses.
- Northland Pioneer College, Navajo County Parks and Recreation, the City of Show Low, the City of Pinetop Lakeside, and Navajo County JTPA, were involved in cooperative training projects in 1985-86. Funding support was also received from 8% funds. Eighteen people were trained in Parks Maintenance and basic construction and all were job placed.

- Northland Pioneer College conducted a management training project for Continental Telephone Company management employees in Spring 1986.

- Phoenix College is using the Phoenix Union Metro Tech VIP culinary arts kitchen and dining room for Commercial Food Preparation I. The instructor is employed by Metro Tech VIP and Phoenix College provides a part-time laboratory assistant. High school students receive 3 hours of course credit upon admission to Phoenix College and college students pay tuition and receive 3 hours of college credit.

- Phoenix College is using Phoenix Union Metro Tech VIP Fingerspelling laboratory to teach high school and college students Fingerspelling (Interpreter for the Deaf Program). The instructor is employed by Metro Tech. High School students receive 3 hours of course credit when admitted to Phoenix College. College students pay tuition and receive 3 hours of college credit.

- Phoenix College is letting Phoenix Union High School District use its paradental clinic to teach Dental Assistant laboratory skills taught in the Basic Operatory Procedures course. Metro Tech employs the instructor. High school students receive 2 hours of course credit for the lecture portion of the course when they are admitted to Phoenix College. They pay tuition and receive 1 hour of regular college credit for the laboratory skills learned at Phoenix College.

- Phoenix College provides clinical instruction for Phoenix Union High School District students learning the laboratory skills that comprise a Phlebotomy Techniques course. The instructor is employed by Phoenix College. High school students will receive 4 hours of course credit for the lecture portion of the course when they enroll at Phoenix College. They pay tuition and receive 3 hours of regular college credit for the clinical portion of the course.

- Phoenix College utilized Metro Tech's Travel Agent Technology Lab to teach Phoenix College students taking classes in the same field.

- Pima Community College and Hughes Aircraft developed a course to teach engineers how to operate metalworking equipment. Hughes Aircraft provided additional equipment to Pima College's machine tool laboratory.

- Pima Community College has a cooperative agreement with the Southern Arizona Innkeepers Association to offer Hospitality courses.

- Pima Community College has a cooperative agreement with Tucson Medical Center, Handmaker Jewish Geriatric Center, St. Mary's Hospital, and the Veterans Administration Hospital to provide clinical training for 90 Nursing Assistant and Practical Nursing students.

- The Pima Community College Skill Center shares facilities, equipment, and curriculum with the Pima County Adult Vocational Training Project in the Business & Office and the Electromechanical Assembly Programs.

- The Pima Community College Skill Center cooperates with the Tucson Indian Center, Tucson Urban League, Operation SER, and Tucson Manpower Development in the Business & Office, Electronics, Food Service, and Health Occupations programs.

- Pima Community College and Sunnyside Unified School District share facilities and equipment for the Business & office and Electronics programs.

- Pima Community College and Tucson Unified School District coordinate faculties, facilities, and equipment for the Institutional Food Service program.

- Pima Community College cooperates with the International Society of Hybrid Micro-electronics for a Micro-electronics Technology course in which instructors, facilities, and equipment are shared.

- Pima Community College and the United State Postal Service share facilities and instructors in the Postal Service Management program.

- Pima Community College and the Tucson Consortium for Electronics Education (IBM, Hughes Aircraft, Burr-Brown Research Corporation, and other electronics firms) share faculties, facilities, and equipment in Electronic Technician, Mechanical Inspectors, Personal Computer Training, Office Education, and Machine Tool Technology programs.

- Pima Community College shares facilities and equipment with various local dental clinics for the Dental Assisting program.

- Pima Community College coordinates facilities and equipment with the Veterans Administration Medical Center for Dental Laboratory Technology.

- Pima Community College shares facilities and equipment with El Dorado Hospital, Kino Community Hospital, KORDS Ambulance, Northwest Hospital, Rural Metro Ambulance, St. Joseph's Hospital and Medical Center, St. Mary's Hospital and Medical Center, Trans Medic Ambulance, Tucson Fire Department, Tucson Medical Center, University Medical Center, and STAT Medical Services, Inc., for its Emergency Medical Technology program.

- Scottsdale Community College is using Scottsdale Unified School District facilities to teach courses in the Culinary Arts, Electronics/Microprocessor Technology, and Motion Picture/Television Production Programs. A Scottsdale Community College instructor teaches Gourmet Cooking in the Scottsdale Vocational Technical Culinary Center Arts kitchen and restaurant. Introduction to Microcomputer Programming and Electronics Fabrication is taught in the Vocational Technical Television Production Laboratory by a community college instructor. The Scottsdale Vocational Technical Television Production Laboratory is used for a Television Techniques course taught by a Scottsdale Community College instructor. High school students receive course credit upon admission to the college. College students pay tuition and receive college credit.

- Yavapai College and Humboldt's Bradshaw Mountain High School have a facilities agreement. Bradshaw Mountain students are transported by the high school to the college four days a week to attend training in welding, diesel, electronics, auto mechanics, building trades, and drafting. One day a week the students study vocational subject matter at their high school. This arrangement has allowed the Bradshaw Mountain students to take advantage of a variety of occupational training opportunities in a very cost-effective manner by avoiding duplication of facilities.

- Yavapai College and Prescott High School are sharing electronics equipment. The high school students are receiving some electronics training at the college. The high school has stationed some of its own microcomputers at the college to increase the number of stations at that site.

- Yavapai College and Prescott High School are also sharing resources for some academic classes. French and Calculus are being taught at the high school by a college instructor.

- Yavapai College is using Mingus Union facilities in the evenings to teach auto mechanics.

- Yavapai College and Cyprus Bagdad worked together to develop and offer management training and training for the mining company's displaced workers.

- Yavapai College and the Yavapai Apache Indian Tribe cooperatively developed a JTPA-funded construction training program in the Verde Valley.

- Alchesay High School and the United States Public Health Service Hospital offer a cooperative health care program. The hospital pays the teachers and provides facilities. Alchesay provides students and transportation. Students work on rotating internships during the second semester.

- Amphitheater School district shared facilities, equipment, and consultation with St. Mary's Hospital for a Health-Related Occupations Program.

- Amphitheater School District has a cooperative arrangement with Arizona Feeds and Greenworld Nursery for horticulture and agricultural business retailing training.

- Several Apache County High Schools work cooperatively with the Job Training Partnership Act Service Delivery Area administrators. Ganado and Chinle High Schools work with the Navajo Division of Labor to provide JTPA summer and regular work experience sites. St. John's High School works with NACOG for the same purpose.

- Bradshaw Mountain students are transported to Mayer for Agriculture.

- Chinle and Ganado High Schools jointly sponsored several activities for students. The schools joined forces to conduct a VICA Skills Olympics. The state Future Business Leader of America Secretary from Ganado went to Window Rock and Chinle to give presentations.

- Colorado City High School established its first vocational advisory committee composed of business/industry to aid in the planning and evaluation of programs.

- Deer Valley Unified High School District is piloting a computerized placement system operated by the Maricopa Community Colleges. Deer Valley High School and Vocational Technical Education Center are sharing Glendale Community College's access to the district-wide placement system to find employment opportunities for their students and recent graduates.

- Holbrook, Snowflake, Show Low, and Whiteriver Districts, utilizing 25% funds, jointly purchased computers and the State Department of Education sponsored "Guidance Information System." It was in operation at the end of the 1986 school year.

- Phoenix Metro Tech shares resources with the Arizona State Employee Federal Credit Union. Metro Tech provides space, utilities, and equipment for an on-site credit union. The Arizona State Employee Federal Credit Union (ASEFCU) staffs the credit union and provides advanced training for Metro Tech banking students. At the end of the year, ASEFCU hires some graduates of the program to work in their credit unions.

- Phoenix Metro Tech cooperatively shares resources with Carlos Valenzuela Academy, a private school, to conduct cosmetology training at Metro Tech. Metro Tech provides facilities and equipment. The instructor is a highly skilled cosmetologist who owns and operates his own school at another location.

- Pima County Adult Vocational Training Project and the Pima Data Processing Department share facilities and equipment in Data Entry training.

- Show Low and Blue Ridge School Districts are operating a joint alternative school. Northern Pioneer, which provided facilities for the alternative school originally, now provides funding for some of the instructors. The two high school districts share funding costs. In addition, the alternative school is supplemented by JTPA and the Arizona Department of Education funding. Instruction in Parks Maintenance was provided during Spring 1986.

5. JOINT PROGRAM DEVELOPMENT:

Cooperative development of programs by high school and college administrators.

- Phoenix College and Phoenix Union High School District administrators are working together to develop the following programs: Food Service Administration, Interpreter for the Deaf, Medical Assistant, and Phlebotomy.

- Pima Community College and Pima County Medical Institute jointly developed a course of remedial training for students in a variety of programs at Pima Medical Institute. The course is aligned with Pima County Medical Institute's schedule. The project was funded through a discretionary grant from the Arizona Board of Directors for Community Colleges.

- Pima Community College and Plaza Three Academy jointly developed an English as a Second Language course to assist the many foreign students with their studies at Plaza Three Academy. The course was aligned with Plaza Three Academy's schedule. The project was funded through a discretionary grant from the Arizona Board of Directors for Community Colleges.

- Pima Community College and the Sunnyside Unified School District have initiated a 2+2 Electronics Program at Desert View High School. This project was begun during the 1985 planning year. The curriculum was jointly developed by the faculties of Desert View High School and Pima Community College.

- The Computer Science Articulation Subgroup of Pima and Santa Cruz Counties Vocational Education Planning Task had jointly developed a 2+2 computer science curriculum with Amphitheater School District, Marana

Public Schools, Sunnyside Unified School District, and Tucson Unified School District. A student guide was developed and distributed. The articulation committee worked on incorporating into the Student Guide preparatory coursework for the high school students, career opportunities, educational goals, and foundation type of courses for students entering a career in Computer Science. The guide also contains programs of study for three educational options.

6. REGIONALIZATION:

Coordination of all public occupational education resources within a geographic area.

- The Pima Community College and Pima County secondary school occupational directors meet monthly to discuss articulation, labor market needs, funding, technologies, and other pertinent topics.

- The Placement Subcommittee of the Vocational Education Planning Task Force of Pima and Santa Cruz Counties developed a plan for the regionalization of all placement services within Pima and Santa Cruz Counties. Several options were discussed, but insufficient funding prohibited the total implementation of any of the options. However, regionalization was initiated on a smaller scale through funding from the Arizona Department of Education, Arizona Department of Economic Security, and Tucson Unified School District. The Pima Youth Placement Program, with the cooperation of the Center for Educational Development, will coordinate and implement placement services for high school students from at least three school districts in two counties: Flowing Wells Public School District (one high school), Nogales Unified School District (one high school), and Tucson Unified School District (ten high schools). The Placement Subcommittee will continue to develop the regionalization of the placement activities in Pima and Santa Cruz Counties and to seek further sources of funding.

ARTICULATION - RELATED ACTIVITIES

The articulation agreements listed on the preceding pages are examples of how vocational training providers are meeting the goals of achieving horizontal and vertical articulation and sharing resources. In addition, the activities described below also meet several of the 1986 objectives which included:

identifying effective procedures for articulating programs and conducting articulation projects

establishing and maintaining an articulation clearinghouse/network

promoting sharing of resources

monitoring existing articulation agreement

developing cost/benefit analysis for articulation efforts.

- **Mesa Public Schools** and **Mesa Community College** developed a cost-benefit comparison for their FY86 Intergovernmental Agreement (IGA). The IGA provided for the sharing and joint use of vocational education programs without the exchange of funds. A comparison of 1985-86 costs for each institution showed that their costs were very close; the difference between them was only 3% ($371).

- The **Maricopa Community College District** employed several articulation specialists to facilitate articulation efforts between secondary schools and community colleges countywide and between community colleges and universities statewide. These individuals developed processes and guidelines to facilitate articulation and have served as clearinghouses for information related to articulation. **Deer Valley Unified School District** also employed a specialist to develop and coordinate articulation.

- The **Scottsdale Unified School District** is proposing to jointly build and develop a vocational technical center with the Maricopa County Community College District on the Scottsdale Community College campus. The proposed site is attractive to the school district because the site is centrally located, would enhance the image of vocational education in the college-oriented community and is cost-effective. This proposal may also result in increased enrollments for Scottsdale Community College. Legislation passed in 1986 (HB2214) now allows school districts and community college districts to jointly own and operate vocational and technical centers.

- The U.S. Department of Labor's Bureau of Apprenticeship and Training (BAT), Deer Valley School District, and Rio Salado Community College are partners in an apprenticeship articulation project. The purpose of the project is to link vocational education training to apprenticeship training. High school students (usually seniors) take skills training

at the Deer Valley Vo-Tech Center for half of the school day and then go out to work for an employer as an Industrial Cooperative Education participant. The training provided by the employer meets apprenticeship standards. Deer Valley Carpentry students also receive credit from the Carpenter's Apprenticeship Program and Rio Salado for performance that meets the standards of the apprenticeship program. Rio Salado grants college credit for mastery of the competencies which comprise an equivalent college course.

III. PROGRESS REPORT: IMPLEMENTATION OF 1986 OBJECTIVES (continued)

B. ISSUE: OPPORTUNITIES FOR COORDINATION BETWEEN PUBLIC AND PRIVATE SCHOOLS.

The objectives for 1986 were to establish a dialogue between public and private schools/colleges to identify mutually beneficial relationships and to pilot some individual projects and activities which involved cooperation/coordination between public and private schools. The following activities met these objectives:

- **Pima Community College** and **Pima County Medical Institute** jointly developed a course of remedial training for students in a variety of programs at Pima County Medical Institute. The course is aligned with Pima County Medical Institute's schedule. The project was funded through a discretionary grant from the Arizona Board of Directors for Community Colleges.

- **Pima Community College** and Plaza Three Academy jointly developed an English as a second language course to assist the many foreign students with their studies at Plaza Three Academy. The course was aligned with Plaza Three Academy's schedule. The project was funded through a discretionary grant from the Arizona Board of Directors for Community Colleges.

- One high school district in Maricopa County initiated dialogue concerning training with a proprietary medical school. Discussions are still in the early stages.

- Job openings identified by the **Maricopa Community Colleges'** Economic Development Specialist were shared with appropriate proprietary schools, community colleges, and community based organizations for the purpose of assisting new companies in their recruitment efforts.

- Several of the secondary districts in the state contract with private cosmetology schools to provide training for interested high school students.

- Carlos Valenzuela Academy, a private cosmetology school, conducts training for students in the Phoenix Union High School District's Metro Tech facilities. Metro Tech supplies the facility and equipment.

C. ISSUE: LABOR MARKET DEMAND AND PROGRAM PRIORITIES

The county planning groups successfully met many of their objectives to utilize labor market information and meet labor market needs. The following activities illustrate how the 1986 objectives were met.

- The Statewide Occupational Planning Coordinator disseminated labor market information to the County Planning Area Coordinators. DES Occupational Employment Forecast Information was discussed in planning meetings and disseminated to planning council members. Some training providers shared the occupational information with faculty, counselors, and advisory committees.

- Labor market information is increasingly being used to identify high demand programs and set priorities. The community college districts and many high school districts now routinely examine labor market information and local employment demand when considering adding, deleting, or modifying programs. Training providers funded by the Job Training Partnership Act used labor market information for establishing training priorities.

- The Maricopa County Vocational Education Planning Council is utilizing a portion of its 25% monies earmarked by the Arizona Department of Education for secondary schools to develop a career guidance booklet targeted to eighth graders. The Deer Valley Unified District agreed to serve as the fiscal agent for the project to which every secondary district in the county contributed a portion of its 25% monies allotment. An advisory committee was established to oversee the project. The Council expects to be ready to distribute the booklet to students by December 1986. The booklet will describe career options for high demand occupations so that students can plan their future education and training based on their career interests.

- Mohave Community College responded to local labor market demand by conducting training in electronic gaming equipment repair and by making cosmetology available to interested students. The college also worked cooperatively with Mohave Union High School District in meeting the economic development training needs of prospective firms planning to locate in Mohave County.

- Graham County Community College District offers open-entry, open-exit programs when possible in order to quickly and continuously meet training needs in its economically depressed service area. The district also works cooperatively with JTPA, serving over 90% of the training needs.

- The Kingman High School HERO Program, in cooperation with New Frontiers Career Guidance Project (Tucson), sponsored a career information workshop for approximately 110 students from the Kingman and Lake Havasu High School Co-op Education Programs. Local business and industry panelists discussed nontraditional careers and answered

students' questions. This half-day workshop was held at the community college to acquaint students with the campus.

- **Chinle High School** is using a packet of materials (7 days of instruction) to teach the process of entrepreneurship to students.

- Several members of the Yuma/LaPaz Vocational Education County Planning participate in Yuma economic development activities. The Yuma Education Business Alliance, which includes several of the county planning council members, met monthly to address areas of mutual interest. In addition, the Yuma Economic Development Corporation was established to help existing business remain and expand in Yuma County and to attract new industries.

- Several secondary schools and community colleges worked hard to strengthen their program advisory councils.

- At the request of industry, Glendale Union High School District developed a new computer applications course.

- Glendale Union High School District analyzed the math competencies that meet graduation requirements and piloted the use of certain vocational classes for meeting math graduation credit requirements.

- **Maricopa Community Colleges** are offering a variety of unique services to meet the labor market needs of business/industry. MCCCD representatives participate in attracting and meeting the training needs of new businesses locating in Maricopa County. These economic development activities are frequently conducted in conjunction with other organizations such as the Phoenix Metrogroup and the Chambers of Commerce, Arizona Department of Commerce, the Arizona Department of Economic Security Research Administration, the Arizona Department of Education, Maricopa County and the City of Phoenix Job Training Partnership Act Administrations, utilities, real estate firms, architectural/engineering firms, financial institutions, industrial developers and others.

  As a result of these economic development activities, the Maricopa Community Colleges have become involved with work force acquisition and training of new hires for newly located firms. Phoenix Metrogroup sponsored a couple of significant events in which MCCCD representatives participated. Thirty employees participated in the Phoenix Metrogroup's celebration of Business Recognition Week. MCCCD employees and other volunteers contacted local business leaders to acknowledge their contributions to the Valley and to make them aware of services that are available to businesses through the Phoenix Metrogroup. MCCCD representatives also participated in Open House Phoenix which was sponsored by the Phoenix Metrogroup. A hundred firms were invited to the Open House in order to interest them in locating in the Valley.

  MCCCD representatives met with dozens of companies during the year to

identify training needs and to inform employers of the availability of training services. Training programs were developed to meet the needs of individual employers, such as:

BFGoodrich Co. - Training was conducted for 26 product assemblers with Industry Training Services and the Job Training Partnership Act contributing training funds. South Mountain Community College conducted the training.

Automotive Aftermarket - Nine courses were developed dealing with the latest electronic systems of General Motors, Ford and Chrsyler cars. Trainees are journeyman auto technicians employed by firms other than major car manufacturers. The courses will be offered three times between June 1986 and April 1987 (390 training slots). Glendale Community College is conducting the training. The project received funding from Industry Training Services.

Sigler and Faigen, Inc. - Phoenix College developed training for 40-50 Sigler and Faigen, Inc. managers from 5 locations. The 25 hours of instruction addressed subjects like human relations, motivating employees, leadership, communication, equal employment opportunity, training responsibility, and time management and delegation.

Coventry Homes Construction Interior Design and Mortgage - Courses in blueprint reading and business psychology were conducted for Coventry employees by Phoenix College.

Federal Aviation Administration - Phoenix College is working with the FAA to determine how FAA classes can be applied to an Associate degree. Phoenix College has been studying the training conducted at the FAA academies to determine how the training provided equates with college courses. In addition, a series of courses (English, Mathematics and Psychology) have been set up for airport workers.

Mayo Clinic - Scottsdale Community College developed a curriculum with the Mayo Clinic to train medical secretaries. Mayo expects to employ students who complete this one year, 30 credit program. Beginning in January, Phoenix College will train 40 desk attendants and receptionists. Mayo will employ all successful completers.

Garrett Turbine Engine Co. - Maricopa Technical Community College developed short courses for basic IBM computer literacy training and specific applications for Garrett employees. As of August 1986, 640 employees including engineers, scientists, accountants, managers, secretaries, etc., enrolled in these short courses.

Sub-zero Freezer - Maricopa Technical Community College developed a 6 hour noncredit course on the techniques of silver brazing for 16 production line workers and supervisors.

Boswell Hospital - In cooperation with Boswell Hospital, Maricopa

Technical Community College developed a Unit Coordinator class for evening students, including Boswell employees who wanted to upgrade their skills.

American Safety Equipment Corporation - Rio Salado Community College conducted supervisory training for 16 lower-level American Safety supervisors in three one credit modules.

Motorola, Inc. - Mesa Community College is offering Electro-Mechanical and Electronic Technology courses to the Motorola Government Electronics Group, the Mesa Motorola plant, and the Motorola Semiconductor Products Sector employees. Over 50 Motorolans became full-time students in August 1986.

The **Government Electronics Group** and the **Mesa Plant** are sending 33 full-time students to **Mesa Community College** starting August 1986. Each student will complete approximately 68 credits in the Electro-Mechanical and Electronic Technology Courses. These students will complete their training in December 1987.

The **Semiconductor Products Sector** is sending 22 full-time students to **Maricopa Technical Community College** starting in August 1986. Each student will complete approximately 68 credits in Electro-Mechanical Courses. Training will be completed in December 1987.

In addition to the preceding examples, **Rio Salado Community College** also conducted onsite training for many employers and labor organizations including:

Anchor National Life Insurance
Arizona Public Service
Asbestos Workers Union
Associated Builders and Contractors
Associated General Contractors of America
Bricklaying and Tilesetting Union
Carpenters Union
Digital Equipment Corporation
First Interstate Services
Garrett Pneumatics
Garrett Turbine Engine
Gen Rad
Glaziers Union
Honeywell
Ironworkers Union
Kitchell Corporation
Litton Industries
McDonnell Douglas
Millwrights Union
Motorola Government Electronics Group
Motorola Semiconductor Processing
Mountain Bell

National Association of Credit Management
Operating Engineers Union
Painters and Decorators Union
Phoenix Electrical Union
Pipefitters/Plumbers Union
Plasterers/Cement Masons Union
Revlon
Roofers Union
Safeway Stores
Salt River Project
Sentry Insurance
Sheetmetal Union
Syntex Ophthalmics Inc.
Teamsters Union

III. PROGRESS REPORT: IMPLEMENTATION OF 1986 OBJECTIVES (continued)

D. ISSUE: PLACEMENT, FOLLOW-UP AND PROGRAM EVALUATION

Development of regional computerized job placement services for students was a 1986 objective of interest to several counties. Work is continuing on this objective. Although few specific cases are cited here, improving placement services was an important priority for a number of institutions in 1986. Student follow-up also continued to be a high priority in Pima, Santa Cruz and Mohave Counties.

- The Placement Subcommittee of the Vocational Education Planning Task Force of Pima and Santa Cruz Counties investigated a regional placement service for the planning area. Two alternatives were developed. One was composed of a central placement file available to all users in the planning area. The Pima Community College Career and Job Placement Services would have been responsible for the placement files and the job developing. The proposal, however, required some $100,000 in computer equipment to be shared by all users. Additional personnel would have been needed for the Career and Job Placement Services center as well.

  The second proposal was for the use of regional job developers under the administration of the Pima Youth Placement Program. Each job developer would serve a pre-determined region of the planning area and the high schools within that region.

  Both proposals were deemed too costly under the present funding structure. However, a version of the second proposal is being implemented through funds secured from the Arizona Department of Education, the Department of Economic Security, and Tucson Unified School District. The regional placement service is under the guidance of the Pima Youth Placement Program and will serve at least three school districts in two counties: Flowing Wells, Nogales Unified, and Tucson Unified School Districts.

  The Placement Subcommittee plans to continue to investigate a regional placement service and funding sources for the service during the coming planning year.

- Lake Havasu High School conducted a follow-up study of secondary vocational students.

- Mohave Union High School District published and distributed its follow-up study of 1984 graduates. Copies were distributed to legislators, Arizona Department of Education staff, and the State Board of Vocational and Technical Education.

- The Follow-up Subcommittee of the Vocational Education Planning Task Force of Pima and Santa Cruz Counties has initiated a three year longitudinal study of the high school graduating class of 1986. Included in the study are over 1,400 students from Amphitheater High School, Baboquivari High School, Canyon del Oro High School, Flowing Wells High School, Nogales High School, Patagonia Union High School,

Sahuarita High School, Sunnyside's Desert View and Sunnyside High Schools, and Tucson Unified's High Schools.

The Subcommittee intends to follow a randomly selected number of vocational and non-vocational students for three years. These students will be mailed questionnaires annually. Non-respondents will be followed up by phone.

The longitudinal study was begun with an "in-class" survey of student's career intent and of the senior's perspective of their high school education. The students were asked to describe their program of studies in high school; 41% described their program as general studies, 38% as college bound, 20% as vocational studies and 1% other. Most students (62%) were employed at the time of the study. The majority worked part-time. Only 23% of the students indicated that they plan to work full-time whereas 47% indicated they planned to attend school or college full-time. Only 7% of the students had not decided on their plans for the coming year.

Sixty percent of the graduating seniors indicted they had decided on a career. Family members were cited as the group of people most helpful to the decision-making process and work experience was identified as the most helpful activitiy in making a career choice.

Students were also asked to rate their high school experience. Overwhelmingly, the graduating seniors expressed satisfaction with their high school experience. Twenty percent gave their schools an excellent overall rating and 70% a satisfactory rating. Only 4% rated their high school experience as poor. Sixty-six percent rated the teacher quality as excellent or satisfactory and 88% rated the quality of courses as excellent or satisfactory.

E. ISSUE: CAREER INFORMATION AND GUIDANCE

Improving career information and guidance for students was an important goal for many school districts in 1986. A number of them utilized their ADE 25% monies earmarked for county planning for obtaining career information and guidance for students. The following activities were undertaken to meet the 1986 objectives.

- The Maricopa County Vocational Education Planning Council proposed a countywide project funded by a small proportion of 25% monies from each secondary district to develop a career guide booklet for eighth graders. The purpose of the booklet is to help students explore career options and plan their education. The booklet will be distributed to school districts in January 1987.

- Several Arizona secondary school districts used their state 25% monies to improve their career information services for students.

- The Vocational Counseling Subcommittee of the Vocational Education Planning Task Force of Pima and Santa Cruz Counties developed a concept for an "Expanded GIS" package. Presently, all high school districts in Pima County, with the exception of the Tucson Unified School District, are linked with the Pima Community College Guidance Information System (GIS) computer network. Tucson Unified School District has its own GIS network.

  The Expanded GIS would upgrade the present system with greater local information. GIS provides national, regional, and state information about occupations. The expanded GIS would include county information derived from county-specific Department of Economic Security Information (DES). The expanded GIS would also include employment information. Other ingredients in the Expanded GIS package are a Course Equivalency Guide, postsecondary catalog information, on-line application process, financial aid information, and job placement information.

  The Expanded GIS would be a valuable career planning tool which would allow a secondary student to:

  - survey broad categories of occupations;
  - select specific job titles;
  - read job descriptions of each of the jobs;
  - determine types of training necessary to be qualified for the occupations selected;
  - investigate postsecondary catalog information regarding the occupational cluster chosen and, if necessary, query the system for course equivalencies at the three State universities or any of the community colleges;

- determine the expected job openings in the occupations at the national, regional, state, and county levels;

- and investigate local placement files for openings.

The Expanded GIS is being developed by the Pima Community College Computer Service Center. However, funding is necessary for the completion of the programming. The Expanded GIS package was linked with the Regional Placement System which could not be implemented without further funding. The development of the Expanded GIS package is continuing on a time available basis by the staff of the Pima Community College Computer Service Center.

The Vocational Counseling Subcommittee will continue to investigate the proposed Expanded GIS package, the means to fund the package, and other alternatives in the coming planning year.

- Both the Yuma/La Paz High Schools and Arizona Western College established course competencies for vocational programs that address work ethic attitudes and responsibility skills to improve the job readiness of students.

F. ISSUE: PROGRAM IMPROVEMENTS

The 1986 objective was to maintain industry-current occupational programs by reviewing programs, updating equipment, redesigning programs and curriculum, upgrading faculty, and providing support to facilitate and enhance instruction. This objective was met in the following manner.

- Most secondary districts utilized their state 25% monies for purchasing equipment, coordinating vocational programs, articulation, and other uses designed to improve and maintain industry-current occupational programs.

- **Mohave Community College** developed program competencies for all its programs. In addition, it established a new policy of not accepting any new courses without competencies.

- **Mohave Union High School District** vocational teachers completed 39 curriculum guides as of June 30, 1986. The guides contain competencies, performance objectives, suggested teacher activities, and suggested evaluation criteria for successful completion of vocational Curriculum guides are being developed in nonvocational areas as well. **Lake Havasu High School** is also developing curriculum guides in all subject areas. The vocational area curriculum guides are nearly completed.

- **Chinle and Ganado High Schools** set up tours in Maricopa County for vocational faculty to expose them to new methods and technology.

- Schools in **Apache County** provided in-service training for their own teachers. Countywide workshops were conducted on IVEPs for counselors, operating cooperative education type programs for special needs and teaching on-the-job skills.

- **Both Navajo Community College and Northland Pioneer College** made arrangements during the past year to make postsecondary vocational education opportunities available to community adults in Apache County. This training makes it possible for adults to retrain or upgrade their skills.

G. ISSUE: FUNDING PRIORITIES

The 1986 objectives for funding were to identify potential sources of funds, write for those that met needs, and to develop a process and criteria for determining funding priorities for the State Funding Model's 25% monies earmarked for county planning.

- Each county planning area developed a process for reviewing and approving secondary level proposed uses for the state 25% monies earmarked for county planning. The funds were most commonly used to purchase needed equipment for priority vocational programs, improve programs to meet state standards, and to provide career information for students.

IV. OBJECTIVES FOR 1987

This section summarizes the goals the county planning groups believed could be achieved during the 1984-89 planning period and the objectives they plan to accomplish in 1987.Although all planning groups started with the issues raised by Senate Bill 1106, their planning processes were conducted independently of each other. Thus, the goals and objectives developed are based on the factors, problems, and opportunities existing for their respective planning areas.

The county plans include many objectives that will be accomplished locally, in many cases by the planning group itself. Some objectives also require outside assistance.

Because of the larger number of objectives, it is not possible to include every objective in this document. Therefore, this summary consists of objectives that appeared in several county plans, that might be of statewide interest, or that were exemplary.

IV. OBJECTIVES FOR 1987 (continued)

A. ISSUE: ARTICULATION OF PROGRAMS AND RESOURCES

GOAL:

To achieve horizontal and vertical articulation between vocational training providers and to develop effective ways of sharing resources.

OBJECTIVES:

1. Identify effective procedures for articulating programs and conduct articulation projects between secondary and postsecondary institutions.

2. Establish and maintain a clearinghouse/network to disseminate information about ongoing articulation projects and coordinate activities.

3. Explore and promote sharing of resources between private and public secondary and postsecondary vocational education providers. Identify opportunities for eliminating duplication and coordinating resources. Identify procedures for sharing human, physical, and fiscal resources.

4. Develop an effective tracking system to follow-up on students who articulate to the community college system and to determine how many are continuing their education.

5. Develop cost/benefit analysis for articulation efforts.

6. Simplify the intergovernmental agreement process.

7. Jointly offer or coordinate support services such as placement, guidance, counseling, handicapped and equity, basic skill training/remediation, and faculty inservice training staff development.

8. Determine the feasibility of occupational credential acceptance articulation between proprietary and public postsecondary vocational training providers.

9. Share vocational degree, program, and course information (i.e. program description, goals, pre-admission criteria, course sequences, and program competencies etc.)

10. Strive to eliminate calendar and scheduling conflicts.

11. Expand contracted training with local and state businesses and industry.

IV. OBJECTIVES FOR 1987 (continued)

12. Form partnerships with business and industry to provide rapid response capability while reducing facility and equipment costs to the local training provider. Develop and implement procedures for involvement of business and industry in cooperative efforts of curriculum development, training, job placement, facility use, equipment sharing, and teacher update.

IV. OBJECTIVES FOR 1987 (continued)

B. ISSUE: *OPPORTUNITIES FOR COORDINATION BETWEEN PUBLIC AND PRIVATE SCHOOLS*

GOAL:

Identify situations in private and public institutions where coordination is mutually beneficial and pilot some individual cooperative projects and activities.

OBJECTIVE 1:

Establish and continue a dialogue between public and private schools/colleges to identify mutually beneficial relationships. Potential topics include:

a. Articulation between high schools and proprietary schools, and between community colleges and proprietary schools.

b. Relative costs to each party of potential cooperative agreements.

c. Accreditation issues that joint agreements between community colleges and proprietary schools might involve.

OBJECTIVE 2:

Pilot some individual projects and activities which involve cooperation/coordination between public and private schools (e.g., placement, recruitment, sharing of resources, coordinated activities, etc.).

IV. OBJECTIVES FOR 1987 (continued)

C. ISSUE: LABOR MARKET NEEDS AND PROGRAM PRIORITIES

GOAL 1:

To utilize labor market information to assist in program planning, curriculum decision-making, program evaluation, and inservice training.

OBJECTIVES:

1. Use labor market and other occupational program research to:

   a. identify occupations that offer good employment opportunities.

   b. determine program priorities.

   c. evaluate and review programs.

   d. delete, modify, and/or create courses.

   e. update county vocational plan and use as a planning tool.

   f. identify curriculum changes needed to keep abreast of technological advances.

   g. advise students concerning the availablity of vocational training opportunities at least one year before students enter the grade level in which vocational programs are first generally available but not later than the beginning of ninth grade.

   h. assist in economic development efforts.

2. Share labor market information with faculty, counselors, and students as a tool in identifying employment opportunities by:

   a. providing departments with information about occupations for which they are training.

   b. including information about occupational demand areas in course catalogs to inform counselors, students and faculty of industry needs.

   c. developing a small booklet describing career options for high demand occupations that could be sent to students' homes and made available in schools. Booklet should include all types of occupations.

3. Conduct training on effectively using labor market information.

IV. OBJECTIVES FOR 1987 (continued)

GOAL 2:

To meet labor market needs by training for occupations offering employment opportunities, upgrading vocational/technical programs to meet business/industry needs, and contributing to community economic development efforts.

OBJECTIVES:

1. Direct priority attention to high demand occupations (in terms of employment opportunities). Offer programs with less demand in a limited numbers of locations.

2. Maintain industry-current occupational programs.

3. Provide county-wide inservice training for vocational teachers to expose them to new methods and technology in their fields.

4. Develop and expand postsecondary vocational education offerings that students can enter and exit at more frequent intervals on a year-around basis.

5. Facilitate the gathering of information needed to analyze which vocational courses teach competencies that meet graduation requirements. Compare competencies of vocational programs with competencies of required courses in order to see if vocational programs reach the same competencies.

6. Incorporate work ethics and employability skills into vocational programs.

7. Contribute to economic development by:

   a. developing and maintaining close relationships between occupational education providers and business/industry/government.

   b. responding more quickly to changing labor market needs and employer training needs.

   c. developing and implementing procedures for cooperative involvement of business/industry in curriculum development, training, job placement, facility use, equipment sharing and teacher update.

8. Encourage entrepreneurship in local areas.

IV. OBJECTIVES FOR 1987 (continued)

D. ISSUE: PROGRAM FOLLOW-UP AND EVALUATION

GOAL:

Develop performance information that can be used by local administrators for program planning and evaluation.

OBJECTIVES:

1. Continue the Pima/Santa Cruz Counties' three-year longitudinal study of the secondary graduating class of 1986, and investigate out-of-county occupational demands.

2. Standardize follow-up instruments and procedures among private and public secondary and postsecondary training.

3. Conduct a follow-up study of secondary vocational students (program completers). Publish the results, and utilize the follow-up information for program planning, curriculum changes, and program evaluation.

IV. OBJECTIVES FOR 1987 (continued)

E. ISSUE: CAREER INFORMATION AND GUIDANCE

GOAL:

Develop vocational counseling/planning for students making career decisions and program selections.

OBJECTIVES:

1. Conduct labor market information workshops and/or guidance and counseling seminars for vocational faculty and counselors.

2. Determine feasibility of county-wide career guidance and career planning network. Identify ways to improve career awareness programs and career guidance services (e.g. sharing resources between districts, providing counselors with state and local job lists and occupational information, etc.).

3. Obtain, provide, and expand career guidance/guidance information systems for students.

4. Identify and facilitate individual student plans to meet special learning needs of the handicapped and disadvantaged students enrolled in vocational courses.

5. Develop a postsecondary course to facilitate the development of appropriate work habits and attitudes.

6. Investigate the development of a counseling and guidance planning area student handbook.

7. Develop a small booklet describing career options for high demand occupations that could be disseminated to eighth grade students.

IV. OBJECTIVES FOR 1987 (continued)

F. ISSUE: PROGRAM IMPROVEMENT

GOAL:

Maintain industry-current programs.

OBJECTIVES:

1. Maintain industry-current occupational programs by:

   a. reviewing programs to identify areas that are outdated.

   b. updating equipment to reflect changing technology or processes.

   c. redesigning programs and curriculum.

   d. developing competency-based curriculum guides for secondary programs.

   e. providing upgrade opportunities for faculty, including opportunities to work in their fields to attain and maintain currency.

   f. exploring joint vocational education in-service activities.

   g. providing technical, personnel, and logistical support to facilitate and enhance instruction for vocational and prevocational programs.

   h. developing/expanding adult credit and non-credit training and retraining which is geared to general labor market needs as well as specific individual business and industry needs.

   i. expanding contracted training with local and state businesses and industry.

   j. working toward meeting the secondary vocational program standards established by the Arizona Department of Education.

   k. developing personnel for coordinating local vocational programs and providing administrative coordination support for small schools.

IV. OBJECTIVES FOR 1987 (continued)

G. ISSUE: FUNDING PRIORITIES

GOAL:

Identify potential sources of funds for vocational/technical education and use financial resources cost-effectively.

OBJECTIVES:

1. Identify potential sources of funds for vocational/technical training.

2. Compare sources of funding with district plans and write for funding that meets those needs.

3. Develop a process and criteria for determining funding priorities for the State Funding Model's 25% monies earmarked for county planning and make funding priority recommendations.

V. RECOMMENDATIONS

This section summarizes the recommendations that emerged from planning group discussions of the issues. These recommendations transcend the boundaries of any individual county planning area and therefore need to be addressed at the state level. Action by the State Board of Vocational Education, the State Board for Community Colleges, the two boards' Joint Coordinating Committee, the Arizona Department of Education and/or the legislature will be needed to enable the aims and goals of the legislation to be realized.

The recommendations in this section pertain to the following issues:

A. Removal of Barriers to Articulation

B. Consideration of Rural Community Needs

C. Funding of Career Guidance and Placement Systems

D. Funds Earmarked for County Planning

E. Incentives for Business and Industry Support and Participation

F. Arizona Department of Education Funding Priority List

G. Related Basic Skills Education

H. Student Follow-up

I. Removal of Artificial Distinction in Industrial Education Programs

J. Updating of Home Economics Programs

K. Evaluation of Vocational Program Standards

V. RECOMMENDATIONS (continued)

A. ISSUE: REMOVAL OF BARRIERS TO ARTICULATION

RECOMMENDATIONS:

1. That the Joint Coordinating Committee recommend to the State Board of Vocational and Technical Education and the State Board of Directors for the Community Colleges that each accept the vocational teacher certification of the other board to facilitate articulation.

2. That the Arizona Legislature simplify intergovernmental agreements to enable schools/colleges/agencies to more easily enter into articulation agreements.

B. ISSUE: CONSIDERATION OF RURAL COMMUNITY NEEDS

RECOMMENDATION:

1. That State Agencies and the Legislature consider the problems of rural communities when making decisions and include rural representatives on state committees so that rural needs and issues can be identified and addressed before final decisions are made.

C. ISSUE: FUNDING AND CAREER GUIDANCE AND PLACEMENT SYSTEMS

RECOMMENDATIONS:

1. That the Arizona Department of Education increase funds for:

   a. counseling eighth grade students to explore career options and develop a secondary education program.

   b. providing career guidance for students in grades 7-10.

   c. training counselors in the skills of vocational and career counseling.

   d. providing regional job placement follow-up, and counseling services or systems.

D. ISSUE: FUNDS EARMARKED FOR COUNTY PLANNING

RECOMMENDATION:

1. That the Arizona Department of Education continue to provide the County Planning Area Priority 25% funds.

2. That the Arizona Department of Education alter the methodology for determining the base amount of the County Planning Priorities funds by allocating the base amount to the County Planning Councils based on the number of counties being served by each Planning Council (This alteration would continue to encourage counties to participate in

V. RECOMMENDATIONS (continued)

county planning without penalizing counties that are working together in one planning council).

E. ISSUE: INCENTIVES FOR BUSINESS AND INDUSTRY SUPPORT AND PARTICIPATION

RECOMMENDATIONS:

1. That the Arizona Legislature provide incentives to business and industry to encourage support and participation in vocational education by:

   a. providing tax credits for the donation of equipment to public vocational education programs meeting labor market needs in high demand and/or emerging occupations.

   b. providing tax credits for the donation of business or industry equipped space to conduct vocational education programs that are open to the general public as well as the employees of participating firms.

F. ISSUE: ARIZONA DEPARTMENT OF EDUCATION FUNDING PRIORITY LIST

RECOMMENDATIONS:

1. That the Arizona Department of Education improve the methodology for developing its funding priority list used for funding secondary vocational programs by:

   a. grouping program clusters more appropriately and consistently.

   b. developing and disseminating adequate documentation of the funding priority list.

   c. citing sources of the information and obtaining review and concurrence from the original data sources to ensure that the information is appropriately interpreted and used.

   d. identifying job opportunities in agriculture/horticulture that are not surveyed by the original data source.

G. ISSUE: RELATED BASIC SKILLS EDUCATION

RECOMMENDATIONS:

1. That school districts use practical applications to teach theoretical concepts in general education mathematics and English/Reading/Communications courses.

2. That school districts accept applied mathematics and English/Reading/-Communications courses for graduation credit requirements.

V. RECOMMENDATIONS (continued)

H. ISSUE: STUDENT FOLLOW-UP

RECOMMENDATION:

1. That the Arizona Department of Education continue to improve its training follow-up of vocational students in order to provide local administrators with information for use in program evaluation.

I. ISSUE: REMOVAL OF ARTIFICIAL DISTINCTION IN INDUSTRIAL EDUCATION PROGRAMS

RECOMMENDATION:

1. That the State Board of Vocational and Technical Education initiate a study to investigate the practicality of combining Technical and Industrial Education and Industrial Arts under one umbrella such as "Industrial Technology". This would provide a simple sequence of courses leading to entry-level occupations.

J. ISSUE: UPDATING OF HOME ECONOMICS PROGRAMS

RECOMMENDATION:

1. That the Arizona Department of Education and school districts change the name of the home economics program to one that more accurately reflects the substance of those programs as related to today's society and needs.

K. ISSUE: EVALUATION OF VOCATIONAL PROGRAM STANDARDS

RECOMMENDATION:

1. That the State Board of Vocational and Technical Education initiate an independent statewide survey of vocational teachers to evaluate the proposed secondary vocational program standards. The survey should preserve teacher anonymity and solicit recommendations as to which standards are deemed important for quality programs and which, if any, should be eliminated.

VI. APPENDICES

APPENDIX A

COUNTY INVENTORIES OF TRAINING PROGRAMS

Standardized inventories of training programs were developed for each county planning area and are included in the appendices of each county plan. These inventories are used by training providers to identify other training providers offering training in related areas. For example, a community college administrator can use the county inventory to identify high schools offering courses in accounting or computer science so that articulation agreements can be developed between their respective programs.

Although the inventories indicate the areas which training is offered, they do not reflect the level or extent of training provided. Thus, the inventories should not be used as an indication of unnecessary duplication. Instead, the inventories are useful in identifying opportunities for program articulation and coordination between training programs.

Copies of the county inventories of training programs, which are included in the county plans, can be obtained from the Statewide Coordinator of Occupational Planning (267-4445) or from the local county vocational education planning coordinators.

APPENDIX B

FORECAST UPDATE

EMPLOYMENT IN ARIZONA

ARIZONA LABOR MARKET INFORMATION NEWSLETTER

Vol. X No. 9
September 1986

Unemployment Rate

Seasonally Adjusted
July*

ARIZONA	7.0%
Maricopa Co.	5.4%
Pima Co.	5.6%
UNITED STATES	6.9%

Consumer Price Index

National-July
1967 - Base Year

Wage Earner/Clerical Worker -	322.9
% Chg. Yr. Ago	1.2
All Urban -	328.0
% Chg. Yr. Ago	1.6

Phoenix-2nd Qtr. 1986
1977 - Base Year

All Urban -	192.6
% Chg. Yr. Ago	0.9

Tucson-2nd Qtr. 1986
1st Qtr. 1983 - Base Qtr.

All Urban -	116.0
% Chg. Yr. Ago	1.0

* Preliminary

Forecast Update
Employment in Arizona

Last January, when we were planning our annual employment forecast, Arizona had already been blessed with three years of continued employment growth since the 1982 recession. Many analysts at that time, including Research Administration staff, foresaw a significant slowdown in growth in 1986 as national economic indicators were about to move or were moving in that direction. Since then, the global and national economies have improved or remained unchanged. We have, therefore, revised our forecasts and incorporated those changes to better evaluate Arizona's economy in the coming months. The employment forecast was modified in areas where known occurrences or very probable occurrences are expected to significantly alter the future.

Recently, the national economy has been experiencing low inflation, falling interest rates, and a weakening dollar. Inflation so far this year has averaged less than 2 percent and is expected to remain low, with only a slight increase next year. Interest rates, as expected, moved lower and are expected to remain low through the end of this year before creeping up next year. With growth and inflation expected to remain low, interest rates are expected to remain near current levels through 1988.

Arizona's economy has been one of the most dynamic in the country during the last two years. With six months of data in for 1986, there were few surprises. Construction employment continued to grow in the first half of the year. Arizona has the highest

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Arizona Labor Market Information Newsletter
WINNER OF THE ICESA 1985 LMI PUBLICATION AWARD

Nancy Augustin, editor
Linda Van Calcar, word processor

concentration of construction employment in the United States with 8.2 percent of total wage and salary employment in April. This is clear evidence of a dynamic, growing economy. This growth has been fueled by low interest rates and strong population growth. Interest rates have remained at relatively low levels as the Federal Reserve has pursued an aggressive monetary policy.

The manufacturing industry has had mixed results so far. Defense contractors have expanded very rapidly, while nondefense electronics manufacturers have reduced work schedules and laid off workers. Two points deserve attention: First, the depreciation of the dollar has not yet impacted favorably in gaining a competitive edge for U.S. manufacturers. Second, growth in defense contracts has continued its upward trend, notwithstanding the expectation of the budget cuts and slower growth resulting from the Gramm-Rudman-Hollings (GRH) legislation for a balanced budget. However, the effect of GRH, or its replacement, on federally-sponsored programs is not yet fully known. As a result, employment has continued to rise, but at a slower pace than in 1984 and 1985.

Devaluation of the dollar has not yet improved the fate of U.S. electronics manufacturers because the dollar has not declined significantly against the currencies of some of our major trading partners. In other words, the dollar's depreciation reduces the cost of our exports to foreigners. But it has not been large enough to change consumer buying patterns. So, any substantial improvement in manufacturing employment appears to be several months ahead despite the decline in the value of the dollar. Beginning next year, manufacturing should realize some positive effects from the declining value of the dollar on employment.

Our forecast expects the unemployment rate to continue to hold at 6.5 percent through the end of 1986 before dropping to 6.0 percent in 1987 and to 5.8 percent in 1988. The unemployment rate, however, is projected to go up to 7.0 percent in 1989. Employment should grow, more or less, at the same pace during the rest of the year. Wage and salary employment is expected to average about 1.345 million in 1986, a 5.2 percent increase over 1985. This rate of growth is modest compared to the growth of 9.6 percent and 8.1 percent recorded in 1984 and 1985 respectively. Looking further ahead, we expect growth to be more modest but above 4.0 percent on average in both 1987 and 1988 before it drops to around 3.0 percent in 1989. These growth rates, while not spectacular, should definitely be greater than the national average.

Out of the total wage and salary employment of 1.345 million, Maricopa County will account for about 888.0 thousand (66 percent), followed by Pima County with about 244.2 thousand (18.2 percent), and the nonmetropolitan counties with about 212.8 thousand (15.8 percent). During the last ten years, Maricopa County has experienced relatively faster growth than Pima County or the state's rural counties, as population, labor force, and employment have increased rapidly. (See page 16.) This pattern is expected to continue in the near future.

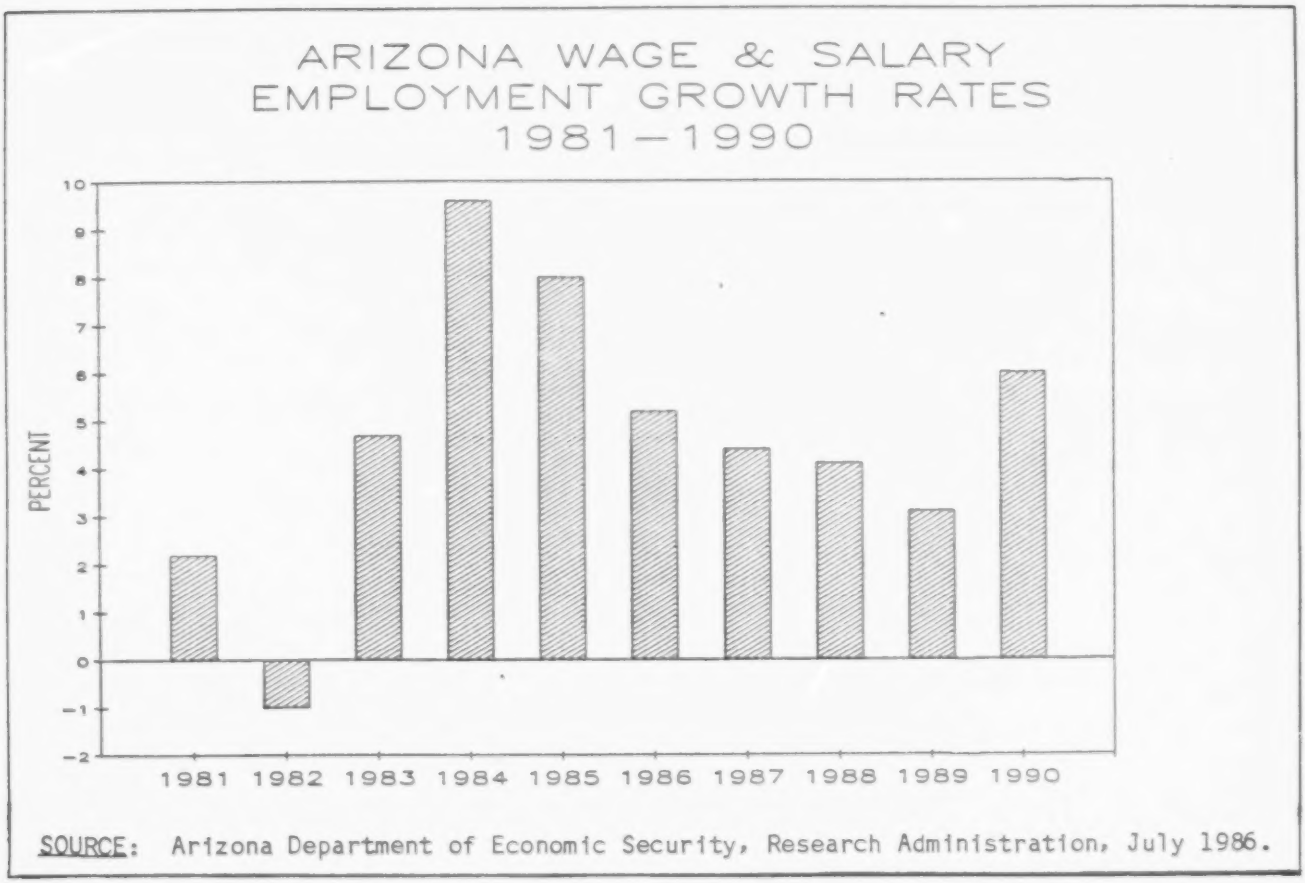
Most of the jobs to be created this year will be in the service and trade sectors. The largest gains should be in the business service sector (temporary help agencies, advertising firms, etc.), hotels, general merchandise firms, and eating and drinking establishments. Employment in retail trade has expanded rapidly as the regional economy has prospered. Gains projected for

these two categories in 1986 are in the range of 6 to 7 percent, with modest growth in 1987 and 1988. Continued expansion of Arizona's population should ensure that the service-producing industries will create thousands of jobs every year, particularly in the metropolitan areas.

Finance, insurance, and real estate (FIRE) is expected to set a record with growth of about 12.0 percent in 1986, followed by about 4 to 5 percent in 1987 and 1988. The continued growth of this industry stems from low interest rates, consumers refinancing their existing loans and mortgages, population growth, and the expansion of out-of-state financial institutions into the state. Government and transportation, communications, and public utilities (TCPU) are all expected to have modest growth in the next 2 1/2 years. Government employment growth will be influenced by the GRH legislation for a balanced budget. Employment growth will be primarily in schools and state and local governments. Growth in federal employment will be mostly related to the military. TCPU will see growth mainly in the transportation sector, particularly in trucking companies.

The mining industry is expected to lose about 2,700 workers by 1988, continuing the losses in copper mining. The declining employment in this industry is due to intense competition from non-U.S. producers and low copper prices in the international markets. This situation is expected to continue through the near future.

Arizona's economic future continues to look good. Employment growth should be strong in 1986, followed by more modest growth in 1987 and 1988. The unemployment rate is expected to remain near 6.5 percent this year and should fall during the following two years. In the long run, we should continue to see growth rates higher than nearly all of the other states in the U.S.



SOURCE: Arizona Department of Economic Security, Research Administration, July 1986.

Arizona Economic Forecasts
(Annual Averages, in Thousands)

	1985	Growth Rate	1986	Growth Rate	1987	Growth Rate	1988	Growth Rate
Labor Force	1,477.0	2.5%	1,580.3	6.9%	1,645.9	4.1%	1,707.6	3.7%
Unemployed	96.0	35.2%	102.9	7.1%	100.1	-2.7%	100.0	-0.1%
Unemployment Rate	6.5%		6.5%		6.1%		5.9%	
Total Employment	1,381.0	0.8%	1,477.4	6.9%	1,545.8	4.6%	1,607.7	4.0%
Wage and Salary Employment	1,277.5	8.1%	1,344.8	5.2%	1,404.1	4.4%	1,461.8	4.1%
Manufacturing	180.7	4.6%	183.4	1.4%	191.1	4.2%	198.4	3.8%
Mining	12.0	-8.4%	10.7	-10.8%	9.9	-7.4%	9.3	-6.0%
Construction	110.4	13.8%	115.1	4.2%	118.2	2.6%	122.2	3.3%
TCPU	63.0	5.4%	64.6	2.5%	66.6	3.1%	68.8	3.3%
Trade	314.4	9.8%	335.5	6.7%	355.5	5.9%	373.1	4.9%
FIRE	80.6	11.8%	90.0	11.6%	94.4	4.8%	98.4	4.2%
Services	298.0	9.1%	319.6	7.2%	335.6	5.0%	350.9	4.5%
Government	218.4	5.3%	226.0	3.4%	232.8	3.0%	240.6	3.3%

NOTE: Totals may not add due to rounding. Growth rates are calculated using unrounded figures.

SOURCE: Arizona Department of Economic Security, Research Administration, July 1986.

Maricopa County

The economic forecast for Maricopa County continues to be bright. Although growth will not be at the breakneck pace of 1984 and 1985, there will be more than 125,000 additional jobs in the county by 1988. Since Maricopa County accounts for nearly two-thirds of population, employment, and income in Arizona, it has a major impact on the state's economic performance.

Unemployment over the last six months has increased only by a tenth of a percent as compared to the annual average of 5.1 percent in 1985. While the unemployment rate has not changed significantly, employment did not grow sufficiently to keep the rate from rising. In July, the unemployment rate was 5.4 percent, well below the national average of 6.9 percent. Unemployment should

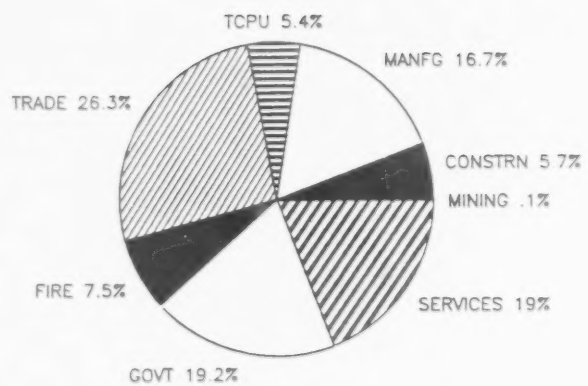
remain near 5.2 percent for the rest of this year before falling to 4.9 percent and 4.7 percent in 1987 and 1988 respectively.

The largest source of new jobs in the next 2 1/2 years will be the service industry. Nearly 36,000 people will be added to this industry by 1988. The rate of growth, however, will be well below that observed during the explosive 1984-1985 period. Among the services sectors, business services will grow the most, followed by health services.

The trade industry will be the second largest source of new jobs in the county. This industry will add nearly 15,000, 14,000, and 10,000 people in 1986, 1987, and 1988 respectively. Growth will come primarily from department stores, food stores, and eating and drinking places. Employment in eating and drinking places will be relatively greater than the other sectors. Relatively high growth will also take place in the automotive-related business--particularly, car dealers. This will be due to the lower interest rates that the nation is expected to continue to enjoy.

Growth in construction will be spurred by lower interest rates and strong population growth. On the one hand, the widely reported surplus of office space in the Phoenix area has resulted in lower growth in commercial construction employment; while the rapid population growth, along with lower interest rates, has sustained residential construction employment. Massive road building activities should also help to offset losses caused by lower office construction and recent layoffs at the Palo Verde Nuclear Power Plant in the Phoenix area. The number of jobs in construction is expected to rise only 4.1 percent this

MARICOPA EMPLOYMENT IN
SELECTED INDUSTRIES
1975 VS 1986



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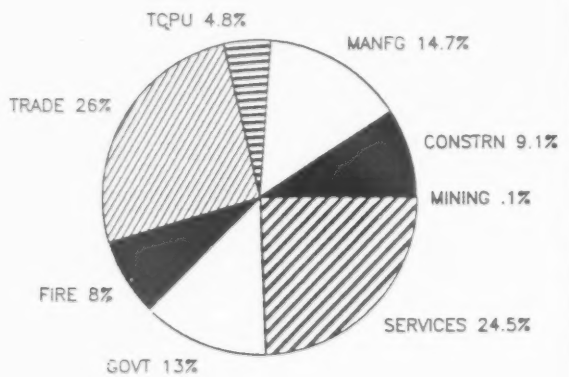

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SOURCE: Arizona Department of Economic Security, Research Administration, July 1986.

Maricopa County Economic Forecasts
(Annual Averages, in Thousands)

	1985	Growth Rate	1986	Growth Rate	1987	Growth Rate	1988	Growth Rate
Labor Force	912.6	2.8%	984.9	7.9%	1,031.1	4.6%	1,071.0	3.8%
Unemployed	46.5	36.0%	51.0	9.6%	50.0	-1.9%	50.4	0.8%
Unemployment Rate	5.1%		5.2%		4.8%		4.7%	
Total Employment	866.0	1.5%	933.9	7.8%	981.1	5.0%	1,020.6	4.0%
Wage and Salary Employment	839.7	8.9%	887.8	5.7%	927.1	4.4%	965.8	4.1%
Manufacturing	130.3	3.8%	130.5	0.1%	135.6	3.9%	140.2	3.3%
Mining	0.6	-14.3%	0.6	0.0%	0.6	0.0%	0.5	-16.6%
Construction	77.3	15.2%	80.4	4.0%	81.5	1.3%	84.3	3.4%
TCPU	41.0	5.9%	42.2	2.9%	43.2	2.3%	44.6	3.2%
Trade	214.8	10.6%	230.7	7.4%	245.7	6.5%	258.9	5.3%
FIRE	63.1	12.1%	70.7	12.0%	74.0	4.6%	76.9	3.9%
Services	201.8	9.0%	217.4	7.7%	227.7	4.7%	237.6	4.3%
Government	110.9	7.5%	115.3	3.9%	118.9	3.1%	122.9	3.3%

NOTE: Totals may not add due to rounding. Growth rates are calculated using unrounded figures.

SOURCE: Arizona Department of Economic Security, Research Administration, July 1986.

year, which will be greater than the 1.3 percent growth expected in 1987. Construction is expected to bounce back again in 1988 with nearly 4.0 percent growth.

The largest share of the manufacturing employment in the county is in durable goods manufacturing. High-tech manufacturing should see a recovery for their products which have been depressed by intense foreign competition and slower-than-expected growth in demand. A lower valued dollar and some real attempts to lower costs should allow these firms to add workers by the end of this year. In addition, producers of defense-related products are hiring nearly as rapidly as last year and should continue to do so unless cutbacks are forced by the Gramm-Rudman-Hollings proposal to balance the budget. As a result, manufacturing should be able to hold its current level of employment or possibly see marginal growth in 1986 followed by higher growth of more than 3.0 percent in both 1987 and 1988.

Contrary to popular belief, the nondurable sector has been holding its own with roughly 20.0 percent of manufacturing employ-

ment. Among the nondurables, printing and publishing is expected to create the largest number of new jobs.

FIRE has been the fastest growing industry during the last three years. Employment in 1986 is expected to grow by about 12.0 percent, similar to the growth recorded in 1985. Most of the growth this year is taking place in both the finance and the real estate sectors. High growth in finance has been influenced by refinancing activities due to lower interest rates. Once financial institutions complete the bulk of their refinancing activities, the industry should slow and is expected to grow about 4.6 and 3.9 percent in 1987 and 1988.

The government sector will not see growth of the magnitude recorded last year (7.0 percent) as it becomes more influenced by cuts in federal funds. However, government employment will continue to grow at about 3 to 4 percent, corresponding to future population growth. The slower growth will be seen in all sectors of government--federal, schools, state, and local. The relative effects of spending cuts, however, are not yet known.

The outlook for Maricopa County remains healthy. The industries that should provide higher employment growth are services, trade, FIRE, and construction; while the manufacturing industry will regain its vigor in 1987 and 1988. It is expected that 1986 will be another good year, although unemployment will rise very slightly because of strong population growth and relatively slower employment growth.

Pima County

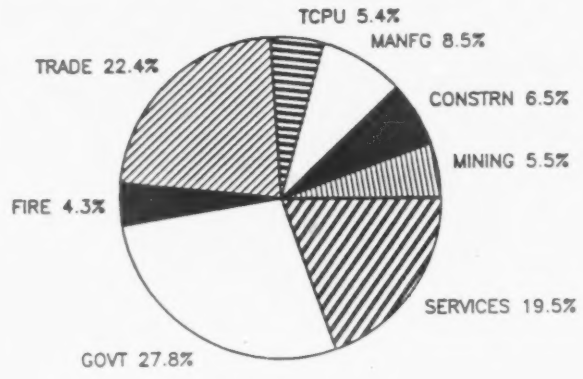
The economic outlook for Pima County looks quite impressive in the coming years as the economy diversifies its dominate sources of employment. The economic base, once dominated by copper mining, has shifted toward more manufacturing and tourist-related employment.

The process of transformation began before employment in mining declined. Copper mining employment has fallen steadily in recent years. In July, employment was 1,600 compared to 7,800 just six years ago. This trend is expected to continue in the near future due to the low price of copper in international markets and intense competition from substitute materials outside the U.S. However, the county's increasingly diverse economy should manage to mitigate the problems created by dismal conditions in the copper industry and the weakened Mexician economy. Our forecast anticipates wage and salary employment growing by about 5.1 percent in 1986, which will keep the unemployment rate at its 1985 average of 5.3 percent. The unemployment rate is expected to increase to 5.5 percent in 1987 and then to decline to 5.2 percent in 1988.

The industries that should provide the largest employment growth are services, trade, and manufacturing. The growth in services and trade will mostly come from growth in tourism. The service industry has experienced explosive growth in the Tucson area in the last two years. Two industries in particular--hotels and lodging and business services--led the way. Employment in hotels and lodging grew by nearly 16 percent in 1985, and similar or greater growth is expected in 1986. The building of new hotels and resorts is enhancing the ability of Tucson to attract a larger share of the tourist and convention businesses which historically has gone to other areas. Business services, which grew by more than 20 percent in 1984 and nearly 17 percent in 1985, is expected to grow almost 10 percent this year. Business services include activities such as building maintenance and security, temporary help agencies, and accounting and advertising firms. This industry will be an important source of employment growth in the future.

Manufacturing plays an important role in Pima County's economy. Manufacturing em-

PIMA COUNTY EMPLOYMENT IN SELECTED INDUSTRIES 1975 VS 1986



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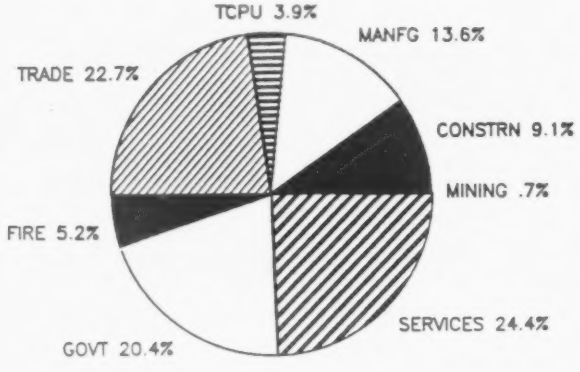

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SOURCE: Arizona Department of Economic Security, Research Administration, July 1986.

ployment in metropolitan Tucson has more than doubled in the past ten years. This growth has been due to the rapid increase in high technology manufacturers locating and expanding in the Tucson area. A large portion of manufacturing is producing defense-related equipment, thus ensuring continued expansion in 1986. Manufacturing should see steady growth of about 5.0 percent in 1987 and 1988.

The construction sector should experience modest growth of 4.7 percent in 1986 as opposed to the record growth of about 16.0 percent in 1985. Relatively low interest rates on home mortgages and strong population growth will keep home building at a high level and will absorb the temporary reduction in nonresidential construction. The industry should see a net gain of 1,000 jobs in 1986 followed by about 1,200 in 1987.

The FIRE sector should also expand by about 12.0 percent in 1986 in the Tucson area, similar to the metropolitan Phoenix area, with most of the growth in finance and real estate. These two sectors will be strong because of low interest rates, population growth, and the construction of single-family housing. The industry should grow about 6.2 percent and 5.8 percent in 1987 and 1988.

Employment in the government sector is expected to grow more moderately in Pima County than in Maricopa County. The important factors that affect government employment are the federal budget situation and population growth. Since Pima County's average population growth is less than Maricopa County's, it is expected that Pima County will, therefore, experience slower growth in government employment. The

government sector should grow between 2.2 percent and 3.7 percent annually over the next three years.

Considering all these factors, the outlook for Pima County is quite good. Employment will grow between 5.1 percent and 4.3 percent over the 1986-1988 period.

Pima County Economic Forecasts
(Annual Averages, in Thousands)

	1985	Growth Rate	1986	Growth Rate	1987	Growth Rate	1988	Growth Rate
Labor Force	290.0	2.1%	306.6	5.7%	316.3	3.1%	328.9	3.9%
Unemployed	15.3	26.4%	16.3	6.5%	17.4	6.7%	17.1	-1.7%
Unemployment Rate	5.3%		5.3%		5.5%		5.2%	
Total Employment	274.7	1.0%	290.2	5.6%	298.8	2.9%	311.8	4.3%
Wage and Salary Employment	232.2	8.3%	244.2	5.1%	254.8	4.3%	265.6	4.2%
Manufacturing	31.5	9.0%	33.1	5.0%	34.7	4.8%	36.1	4.0%
Mining	2.4	-29.4%	1.6	-33.3%	1.0	-37.5%	0.8	-20.0%
Construction	21.2	15.8%	22.2	4.7%	23.4	5.4%	24.3	3.8%
TCPU	9.4	5.6%	9.5	1.0%	9.7	2.1%	10.0	3.0%
Trade	52.1	9.7%	55.4	6.3%	58.4	5.4%	60.9	4.2%
FIRE	11.5	13.9%	12.8	11.3%	13.6	6.2%	14.4	5.8%
Services	55.9	10.9%	59.6	6.6%	62.8	5.3%	66.2	5.4%
Government	48.4	3.0%	49.9	2.2%	51.1	2.4%	53.0	3.7%

NOTE: Totals may not add due to rounding. Growth rates are calculated using unrounded figures.

SOURCE: Arizona Department of Economic Security, Research Administration, July 1986.

Forecast Update Continued on Page 14

The forecast for Arizona's nonmetropolitan counties begins on page 14. After the analysis of our rural counties, the forecast ends with a chart of "Wage and Salary Employment Shares, by County, 1975 versus 1986."

Nonmetropolitan Counties

Total wage and salary employment for the nonmetropolitan counties in 1985 was 205,600, which is about 16.0 percent of total Arizona wage and salary employment. The nonmetropolitan counties consist of 13 rural counties with diverse economies. On average, each county has about 1.5 percent of statewide wage and salary employment. Since the employment base of each county is very small, the Research Administration continues to forecast for the nonmetropolitan areas as a whole. This helps in developing better forecasts.

The nonmetropolitan areas have some common features: 1) they rely on the four Cs--cotton, cattle, citrus, and copper; 2) they have been negatively impacted by the declining trend in commodity prices which has weakened the growth of most nonmetropolitan economies; and 3) some counties rely heavily on border trade which is adversely affected by the weakened Mexican economy.

Nonmetropolitan Counties Economic Forecasts
(Annual Averages, in Thousands)

	1985	Growth Rate	1986	Growth Rate	1987	Growth Rate	1988	Growth Rate
Labor Force	274.4	1.9%	288.8	5.2%	298.5	3.3%	307.7	3.0%
Unemployed	34.2	38.5%	35.5	3.8%	32.7	-7.8%	32.5	-0.6%
Unemployment Rate	12.5%		12.3%		11.0%		10.6%	
Total Employment	240.3	-1.8%	253.3	5.4%	265.8	4.9%	275.2	3.5%
Wage and Salary Employment	205.6	4.5%	212.8	3.5%	222.1	4.3%	230.4	3.7%
Manufacturing	18.9	2.7%	19.8	4.7%	20.7	4.5%	22.1	6.7%
Mining	9.0	-0-	8.5	-6.5%	8.3	-2.3%	8.0	-3.6%
Construction	11.9	2.6%	12.5	4.1%	13.3	6.4%	13.7	3.0%
TCPU	12.6	3.3%	12.9	2.3%	13.7	6.2%	14.2	3.6%
Trade	47.5	6.5%	49.4	3.7%	51.4	4.0%	53.4	3.8%
FIRE	6.0	5.3%	6.4	6.6%	6.9	7.8%	7.2	4.3%
Services	40.3	6.9%	42.5	5.4%	45.0	5.8%	47.1	4.6%
Government	59.1	3.1%	60.8	2.8%	62.8	3.2%	64.8	3.1%

NOTE: Totals may not add due to rounding. Growth rates are calculated using unrounded figures.

SOURCE: Arizona Department of Economic Security, Research Administration, July 1986.

Since most commodities markets (i.e., cotton and copper markets) are expected to remain soft in the near future, the forecast projects a growth rate of about 3.5 percent in 1986, then improving to nearly 4.5 percent in 1987. On the other hand, unemployment will remain in double digits for most of the nonmetropolitan counties in the foreseeable future. During the forecast period, the unemployment rate should decline from its present level of about 12.5 percent to about 10.6 percent in 1988.

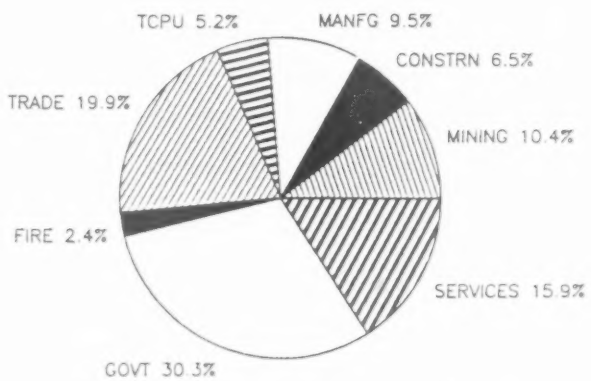
In general, unemployment has been a persistent problem in most of the rural areas. A few communities--Flagstaff, Prescott, Sierra Vista, and Casa Grande--have been able to attract enough jobs to keep their unemployment rates below the double digit levels that exist in most other rural communities. Others such as Clifton, Morenci, Douglas, and Superior have been ravaged by the depressed copper industry.

In general, employment in the nonmetropolitan counties will grow at a slower rate than in the urban counties. However, there are some cities that should experience good economic growth. These cities are characterized by strong service and trade sectors, especially related to tourism; some new manufacturing facilities; and new construction projects. On the other hand, mining communities will experience negative growth in employment. The communities that rely on border trade (e.g., Nogales, Yuma) are negatively affected by the lower value of the peso against the dollar and a weak Mexican economy in general.

The trade and service industries together will account for over half of all new jobs in the nonmetropolitan counties during the next two and a half years with services adding 6,800 and trade adding 5,900 new jobs. As mentioned above, many of these jobs will be related to tourism: i.e., hotels and lodging sectors, general merchandise sectors, and eating and drinking places.

Nonmetropolitan counties will experience better growth in nondurable than durable

NONMETROCOUNTIES EMPLOYMENT
IN SELECTED INDUSTRIES
1975 VS 1986



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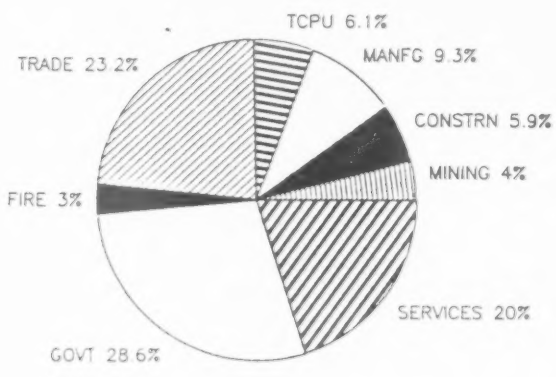

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SOURCE: Arizona Department of Economic Security, Research Administration, July 1986.

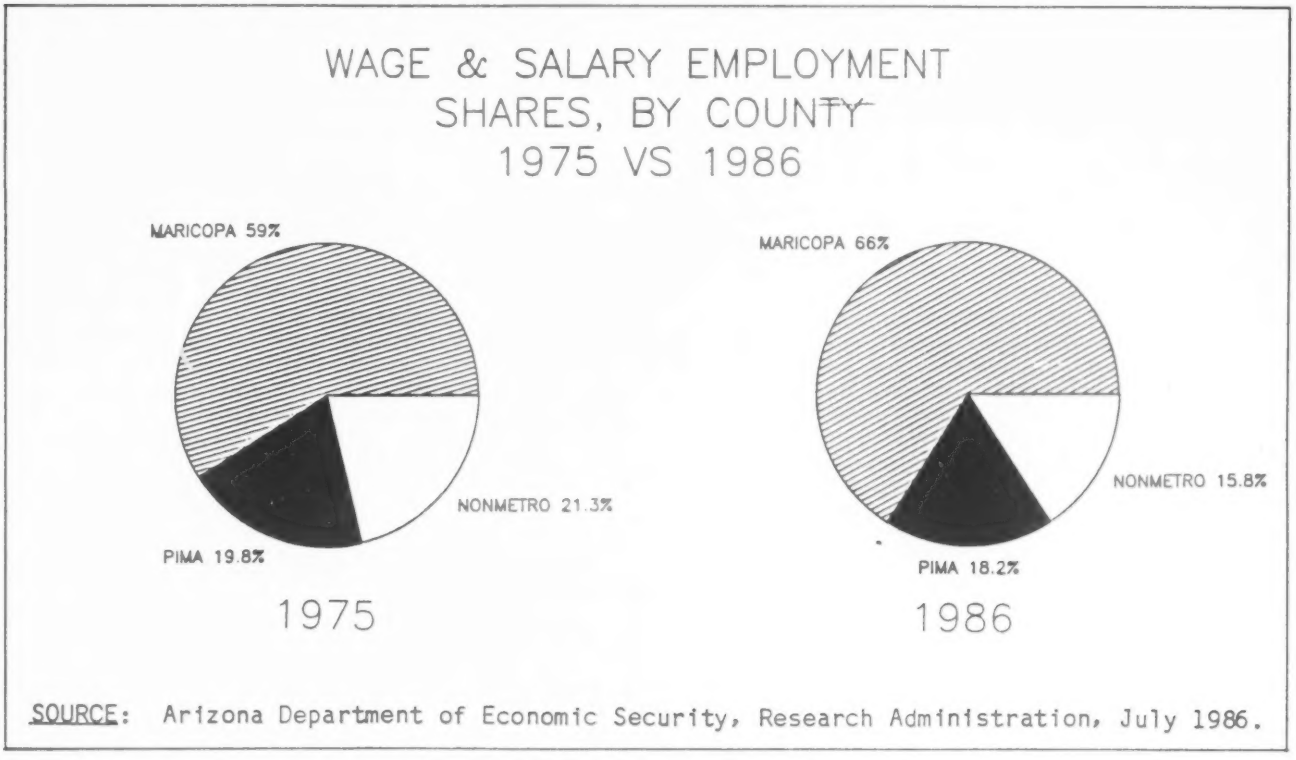
goods manufacturing. The nondurables include apparel, printing and publishing, textiles, paper, plastics, and leather. In the durables categories, lumber and wood products, stone, clay, and glass should experience modest employment growth. Construction should see an increase of 600 jobs in 1986 as a result of low interest rates.

It is expected that Navajo, Coconino, and Apache counties will benefit from the growth in lumber and wood products; Mohave, Yuma, Pinal, Yavapai, and Cochise from construction and some manufacturing. Graham, Greenlee, and Gila will be hurt somewhat by employment losses in primary metals manufacturing due to problems in mining.

Finally, government, the largest employer in the nonmetropolitan counties, should add about 1,700 jobs in 1986. Employment growth should average about 3.0 percent in 1987 and 1988.

In the long run, nonmetropolitan Arizona should be better off. If farm and metal prices improve and the dollar weakens gradually, the rural counties will be able to attract a larger share of total new migrants to the state.

Jalal Ahmad



SOURCE: Arizona Department of Economic Security, Research Administration, July 1986.

Arizona Unemployment Insurance Activities - June 1986

	June 1986	May 1986	June 1985	From One Year Ago
Arizona Claimants Served*	33,503	30,209	31,970	4.8%
Arizona Average Weeks Unemployed**	8.5	8.8	8.3	2.7%
Arizona Benefits Paid*	$ 11,035,491	$ 10,887,908	$ 8,889,619	24.1%
Arizona Trust Fund Balance	$371,365,100	$370,143,626	$295,410,671	25.7%

*All Programs **UI Only

APPENDIX C

ARIZONA OCCUPATIONAL EMPLOYMENT FORECASTS

The purpose of this section is to present the employment and job opportunity information for a variety of occupations for use in program planning, curriculum development, and career planning.

This occupational information was developed by the DES Occupational Employment Statistics Program which surveys industries in all Arizona counties to determine their occupational composition. Survey results for the state are summarized in the table on the following pages. The occupations are listed by occupational employment statistic (OES) code, a system that groups related occupations together. The occupational groupings are:

1. Managerial and Administrative Occupations
2. Professional, Paraprofessional, and Technical
3. Sales and Related Occupations
4. Clerical and Administrative Support Occupations
5. Service Occupations
6. Agricultural, Forestry, and Related Occupations
7. Production, Maintenance, and Material Handling

This occuptional information was also organized alphabetically and in ranking order of employment. Because of space limitations, those two arrangements are not included here, but can be obtained from DES Labor Market Information. This information is also available by county.

This data includes workers earning a wage or salary, but excludes self-employed, unpaid family, and agricultural workers. Therefore, this data encompasses more than 90% of Arizona's workers. Nevertheless, the exclusions impact certain occupations significantly. For example, self-employed doctors and lawyers, and those earning a commission (such as real-estate salesmen) are not reflected.

Workers employed in the agricultural industry are also excluded. However, some workers with agricultural-related training and jobs are picked up in the Occupational Employment listing. For example, a feed store worker may be counted as a sales clerk working in the retail trade sector. (Agricultural employment information is collected by the University of Arizona College of Agriculture every three to four years.)

Users of occupational employment information need to keep in mind that occupational/vocational training and/or experience may provide a worker with the skills needed to qualify for employment in several occupations. For example, a general business program that includes substantial coursework in accounting may enable a student to become an accounting clerk, bookkeeper, payroll clerk, teller, or procurement agent.

In addition, different kinds of training providers may offer training related to a cluster of occupations. Some providers such as secondary-schools, skill centers, and employment training providers will generally concentrate on entry-level skills. Community colleges, apprenticeship programs, and proprietary schools, on the other hand, will offer both entry level and advanced occupational training. Universities prepare students for occupations requiring a four-year degree or post-graduate study. Some occupations, on the other hand, require little or no training or are best learned on the job.

The employment estimates represent the annual average number of workers employed for the specified year. The five year estimate of openings due to growth and separation are based on the estimated number of job opportunities for the 1986-91 period. Labor turnover, caused when a worker changes jobs, is not included in this five year estimate of job opportunties. Vacancies caused by turnover are generally the largest source of job openings. It should be noted that the projection technique used to estimate the number of job openings does not possess the degree of accuracy that may be implied by small employment and demand figures.

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ARIZONA OCCUPATIONAL EMPLOYMENT FORECASTS

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OCCUPATIONAL EMPLOYMENT FORECASTS

SECTION 1: OCCUPATIONS IN OES CODE SEQUENCE

SECTION 2: OCCUPATIONS IN ALPHABETIC SEQUENCE

SECTION 3: OCCUPATIONS RANKED IN DESCENDING ORDER OF EMPLOYMENT

The material herein was developed by the Occupational Employment Statistics (OES) program which surveys industries in all Arizona counties to determine their occupational composition. The information in the following table is based on the results of those surveys.

The data reflect workers earning a wage or salary and excludes self-employed, unpaid family, and agricultural workers. Wage and salary employment represents more than 90 percent of Arizona's workers; however, the exclusion of workers not earning a wage or salary impacts certain occupations more than others. For example, employment of those earning only a commission (such as real estate salesmen) is not reflected.

Projecting occupational employment and demand is accomplished in two basic stages. First, industry employment estimates are developed for the target years. These forecasts are computed using an econometric model driven by forecast values for variables such as national employment, interest rates, and inflation. Staffing pattern ratios, as determined by the OES survey, are then applied to the industry employment projections and represents the second stage of the forecasting methodology.

Employment growth in each of the nonmetropolitan counties reflects the rate calculated for the "balance of state" (Arizona less Maricopa and Pima counties). Projected employment for the hospital industry in Yuma County, for example, reflects levels that would be attained if the county's hospitals were to expand at the rate that is predicted for all hospitals in the "balance of state." Projected hospital employment in turn determines the employment and demand for the industry's occupations, i.e., nurses.

The occupational employment forecasts are based on the expected change from levels reported by employers on the OES survey. This methodology precludes the inclusion of employment projections for newly established firms in industries that didn't exist in a particular county at the time of the survey.

Employment data represent the annual average for the specified year. "Job Opportunities" indicates the average number of job openings (based on the annual average employment) for the period between corresponding months of the specified years. The projection technique does not possess the degree of accuracy that may be implied by small employment and demand figures.

"Job Opportunities" represents the sum of openings resulting from expansion and replacement during the projection period. Expansion is the numerical difference in employment for a given period. Replacement represents those job openings that transpire due to separations from the labor force, i.e., death, retirement, and pregnancy, and is based on national occupational separation rates. The "Job Opportunities" column does not account for labor turnover, i.e., openings created when a worker changes jobs, leaving the job to be filled by someone else. These vacancies are generally the largest source of job openings.

OCCUPATIONS IN OES CODE ORDER

OES CODE	OES OCCUPATIONAL TITLE	EMPLOYMENT 1986	EMPLOYMENT 1987	EMPLOYMENT 1991	JOB OPPORTUNITIES 1986-87	JOB OPPORTUNITIES 1988-91	JOB OPPORTUNITIES 1990-91	GROWTH 1986-91	
	MANAGERIAL & ADMINISTRATIVE OCCUPATIONS	77,863	82,313	100,980	6,019	36,082	6,795	23,117	30%
13002	FINANCIAL MANAGERS	6,004	6,363	7,880	398	2,722	476	1,876	31%
13005	PERSONNEL, TRAINING, & LABOR RELATIONS MGRS.	1,045	1,111	1,398	48	471	67	353	34%
13008	PURCHASING MANAGERS	2,977	3,129	3,853	189	1,245	230	876	29%
13011	MARKETING, ADVERTISING, & PUBLIC REL. MGRS.	2,207	2,337	3,073	153	1,239	226	866	39%
13014	ADMINISTRATIVE SERVICES MANAGERS	2,039	2,170	2,807	140	1,060	186	768	38%
15002	POSTMASTERS & MAIL SUPERINTENDENTS	199	200	219	8	74	11	20	10%
15005	EDUCATION ADMINISTRATORS	157	165	215	7	78	12	58	37%
15008	MEDICINE & HEALTH SERVICES MANAGERS	1,451	1,509	1,823	84	581	112	372	26%
15011	PROPERTY & REAL ESTATE MANAGERS & ADMIN.	1,988	2,109	2,462	178	828	158	474	24%
15014	INDUSTRIAL PRODUCTION MANAGERS	1,871	1,996	2,528	149	927	176	657	35%
15017	CONSTRUCTION MANAGERS	7,309	7,756	9,355	564	3,061	557	2,046	28%
15021	MINING, QUARRYING, & DRILLING MANAGERS	79	93	124	11	53	5	45	57%
15023	TRANSPORT., COMMUN., & UTILITIES OPERATIONS MGRS.	47	49	55	1	9	1	8	17%
15026	FOOD SERVICE & LODGING MANAGERS	7,277	7,777	9,719	730	3,953	796	2,442	34%
19005	GENERAL MANAGERS & TOP EXECUTIVES	16,069	17,021	21,206	1,202	7,627	1,404	5,137	32%
19999	ALL OTHER MANAGERS & ADMINISTRATORS	27,144	28,528	34,263	2,157	12,154	2,378	7,119	26%
	PROFESSIONAL, PARAPROFESSIONAL, & TECHNICAL	251,401	263,641	315,716	18,293	107,685	20,599	64,315	26%
21102	UNDERWRITERS	1,157	1,221	1,429	106	538	104	272	24%
21105	CREDIT ANALYSTS	467	488	582	35	239	41	115	25%
21108	LOAN OFFICERS & COUNSELORS	1,470	1,545	1,848	98	575	110	378	26%
21111	TAX PREPARERS	473	503	649	41	268	51	176	37%
21114	ACCOUNTANTS & AUDITORS	8,740	9,221	11,324	663	4,178	778	2,584	30%
21117	BUDGET ANALYSTS	452	476	601	29	218	37	149	33%
21199	ALL OTHER FINANCIAL SPECIALISTS	791	830	1,023	46	321	55	232	29%
21302	WHOLESALE & RETAIL BUYERS, EXC FARM PRODUCTS	1,838	1,935	2,374	142	884	169	536	29%
21305	PURCHASING AGENTS & BUYERS, FARM PRODUCTS	*	*	*	0	5-	0	5-	*
21308	PURCHASING AGENTS, EXC. WHOLESALE, RETAIL, & FARM	2,376	2,516	3,135	147	1,085	171	759	32%
21502	CLAIMS TAKERS, UNEMPLOYMENT BENEFITS	51	53	62	2	17	2	11	22%
21505	SPECIAL AGENTS, INSURANCE	315	328	381	18	108	19	66	21%
21508	EMPLOYMENT INTERVIEWERS	1,273	1,333	1,603	82	519	99	330	26%
21511	PERSONNEL, TRAINING, & LABOR REL SPECIALISTS	3,002	3,152	3,966	184	1,378	253	964	32%
21902	COST ESTIMATORS	2,065	2,208	2,747	213	1,259	232	682	33%
21905	MANAGEMENT ANALYSTS	143	158	196	14	94	17	53	37%
21908	CONSTRUCTION & BUILDING INSPECTORS	570	595	681	32	217	34	111	19%
21911	COMPLIANCE & ENFORCE. INSPECTORS, EXC. CONST.	2,497	2,573	2,895	143	823	151	398	16%
21914	TAX EXAMINERS, COLLECTORS, & REVENUE AGENTS	464	477	543	26	160	30	79	17%
21917	ASSESSORS	287	298	344	28	160	29	57	20%
21921	CLAIMS EXAMINERS, PROPERTY & CASUALTY INSURANCE	343	361	433	22	136	25	90	26%
21999	ALL OTHER MANAGEMENT SUPPORT WORKERS	3,858	4,101	5,283	320	2,126	407	1,425	37%
22100	ENGINEERS	134	139	169	6	44	5	35	26%

* OCCUPATIONS WITH EMPLOYMENT OF LESS THAN 25

OCCUPATIONS IN OES CODE ORDER

OES CODE	OES OCCUPATIONAL TITLE	EMPLOYMENT			JOB OPPORTUNITIES			GROWTH	
		1986	1987	1991	1986-87	1986-91	1990-91	1986-91	
22102	AERONAUTICAL AND ASTRONAUTICAL ENGINEERS	1,460	1,570	1,948	128	605	118	488	33%
22105	METALLURGICAL & MATERIALS ENGINEERS	179	189	222	8	45	5	43	24%
22108	MINING ENGINEERS, INCL. MINE SAFETY	88	96	106	6	29	2	18	20%
22111	PETROLEUM ENGINEERS	*	*	*	0	2	0	1	*
22114	CHEMICAL ENGINEERS	179	188	255	8	85	13	76	42%
22117	NUCLEAR ENGINEERS	*	*	*	0	5	1	5	*
22121	CIVIL ENGINEERS, INCL. TRAFFIC	2,333	2,459	2,986	170	1,035	199	653	28%
22123	AGRICULTURAL ENGINEERS	150	158	205	9	68	13	55	37%
22126	ELECTRICAL & ELECTRONIC ENGINEERS	11,024	11,809	15,708	912	5,577	1,154	4,684	42%
22128	INDUSTRIAL ENGINEERS, EXC. SAFETY	2,107	2,281	2,975	195	1,078	208	868	41%
22132	SAFETY ENGINEERS, EXC. MINING	167	176	233	5	75	9	66	40%
22135	MECHANICAL ENGINEERS	3,303	3,594	4,641	306	1,589	294	1,338	41%
22199	ALL OTHER ENGINEERS	2,007	2,143	2,715	142	877	159	708	35%
22302	ARCHITECTS, EXC. LANDSCAPE & MARINE	1,060	1,128	1,448	95	572	115	388	37%
22308	LANDSCAPE ARCHITECTS	114	119	146	5	46	6	32	28%
22311	SURVEYING & MAPPING SCIENTISTS	352	378	480	24	150	26	128	36%
22500	ENGINEERING & RELATED TECHS.	279	296	369	18	124	21	90	32%
22502	CIVIL ENGINEERING TECHNICIANS & TECHNOLOGISTS	1,212	1,275	1,506	81	493	88	294	24%
22505	ELECTRICAL & ELECTRONIC ENGINEERING TECHS.	8,259	8,744	11,663	551	4,024	836	3,404	41%
22508	INDUSTRIAL ENGINEERING TECHS.	412	447	595	37	242	42	183	44%
22511	MECHANICAL ENGINEERING TECHNICIANS & TECHNOLOGIST	1,081	1,158	1,486	71	443	75	405	37%
22514	DRAFTERS	5,230	5,561	7,176	372	2,477	482	1,946	37%
22517	ESTIMATORS & DRAFTERS, UTILITIES	205	212	240	8	51	7	35	17%
22521	SURVEYING & MAPPING TECHS.	1,138	1,202	1,490	70	436	80	352	31%
22599	ALL OTHER ENGINEERING & RELATED TECHNICIANS	2,657	2,803	3,501	181	1,193	231	844	32%
24100	PHYSICAL SCIENTISTS	*	*	*	0	4	0	3	*
24102	PHYSICISTS & ASTRONOMERS	75	80	101	2	30	5	26	35%
24105	CHEMISTS, EXC. BIOCHEMISTS	363	381	449	15	123	14	86	24%
24108	ATMOSPHERIC & SPACE SCIENTISTS	25	25	29	0	6	1	4	16%
24111	GEOLOGISTS, GEOPHYSICISTS, & OCEANOGRAPHERS	456	485	570	26	131	19	114	25%
24199	ALL OTHER PHYSICAL SCIENTISTS	246	259	309	9	78	9	63	26%
24300	LIFE SCIENTISTS	30	31	37	1	9	1	7	23%
24302	FORESTERS & CONSERVATION SCIENTISTS	475	484	531	10	93	14	56	12%
24305	AGRICULTURAL & FOOD SCIENTISTS	163	167	185	9	44	6	22	13%
24308	BIOLOGICAL SCIENTISTS	407	417	458	13	96	12	51	13%
24311	MEDICAL SCIENTISTS	135	141	160	9	43	7	25	19%
24399	ALL OTHER LIFE SCIENTISTS	*	*	*	0	3	0	2	*
24500	PHYSICAL & LIFE SCIENCE TECHS.	93	98	116	6	35	6	23	25%
24502	BIOLOGICAL, AGRI., & FOOD TECHS., EXC. HEALTH	1,432	1,449	1,586	48	344	66	154	11%
24505	CHEMICAL TECHS., EXC. HEALTH	432	457	543	25	157	21	111	26%
24508	NUCLEAR TECHNICIANS & TECHNOLOGISTS	28	29	39	2	16	3	11	39%
24511	PETROLEUM TECHNICIANS & TECHNOLOGISTS	*	*	*	0	1	0	1	*
24599	ALL OTHER PHYSICAL & LIFE SCIENCE TECHS.	486	507	592	23	162	25	106	22%
25102	SYSTEMS ANALYSTS, ELECTRONIC DATA PROCESSING	4,072	4,314	5,261	234	1,383	252	1,189	29%
25105	COMPUTER PROGRAMMERS	3,950	4,197	5,200	247	1,471	262	1,250	32%
25108	COMPUTER PROGRAMMER AIDES	583	623	787	36	253	42	204	35%
25111	PROGRAMMERS - NUMERICAL, TOOL, & PROCESS	253	284	403	30	170	32	150	59%

* OCCUPATIONS WITH EMPLOYMENT OF LESS THAN 25

OCCUPATIONS IN OES CODE ORDER

OES CODE	OES OCCUPATIONAL TITLE	EMPLOYMENT			JOB OPPORTUNITIES			GROWTH	
		1986	1987	1991	1986-87	1986-91	1990-91	1986-91	
25302	OPERATIONS & SYSTEMS ANALYSTS, EXC. COMPUTER	911	991	1,370	78	491	94	459	50%
25310	MATHEMATICAL SCIENTISTS	105	109	120	4	28	4	15	14%
25312	STATISTICIANS	279	294	351	15	108	17	72	26%
25313	ACTUARIES	51	55	65	2	24	3	14	27%
25315	FINANCIAL ANALYSTS, STATISTICAL	187	198	240	9	71	9	53	28%
25319	ALL OTHER MATHEMATICAL SCIENTISTS	59	59	65	1	10	1	6	10%
25323	MATHEMATICAL TECHNICIANS	96	101	131	7	36	5	35	36%
27102	ECONOMISTS, INCL. MARKET RESEARCH ANALYSTS	179	191	228	9	70	12	49	27%
27105	URBAN & REGIONAL PLANNERS	471	490	562	19	119	18	91	19%
27108	PSYCHOLOGISTS	825	857	989	33	241	38	164	20%
27199	ALL OTHER SOCIAL SCIENTISTS	286	295	339	6	67	10	53	19%
27302	SOCIAL WORKERS, MEDICAL & PSYCHIATRIC	3,251	3,391	3,961	251	1,449	272	710	22%
27305	SOCIAL WORKERS, EXC. MEDICAL & PSYCHIATRIC	1,229	1,290	1,577	99	624	115	348	28%
27308	SOCIAL SERVICE TECHNICIANS	1,099	1,159	1,423	66	438	78	324	29%
27311	RECREATION WORKERS	1,390	1,458	1,725	100	581	105	335	24%
27502	CLERGY	95	97	115	3	33	4	20	21%
27505	DIRECTORS, RELIGIOUS ACTIVITIES & EDUCATION	50	52	68	4	32	5	18	36%
27599	ALL OTHER RELIGIOUS WORKERS	51	54	70	3	28	4	19	37%
28102	JUDGES & MAGISTRATES	386	401	459	29	202	29	73	19%
28108	LAWYERS	4,616	4,885	6,108	362	2,158	430	1,492	32%
28300	LEGAL ASSISTANTS & TECHNICIANS, EXC. CLERICAL	51	53	72	5	35	6	21	41%
28302	LAW CLERKS	432	453	551	26	172	32	119	28%
28305	PARALEGAL PERSONNEL	786	833	1,063	59	383	76	277	35%
28308	TITLE SEARCHERS	240	248	294	17	116	21	54	23%
28311	TITLE EXAMINERS & ABSTRACTORS	811	846	1,000	69	413	80	189	23%
28399	ALL OTHER LEGAL ASSISTANTS/TECHS., EXC. CLERICAL	93	99	122	5	51	6	29	31%
31111	LECTURERS	61	65	84	5	29	6	23	38%
31114	NURSING INSTRUCTORS	169	176	209	8	56	10	40	24%
31117	GRADUATE ASSISTANTS, TEACHING	3,050	3,196	3,570	230	981	191	520	17%
31120	TEACHERS, COLLEGE - AGRI. & NATURAL RESOURCES	162	168	184	8	42	7	22	14%
31121	TEACHERS, COLLEGE - ARCHITECTURE & ENVIRON. DESIG	73	76	87	4	22	4	14	19%
31122	TEACHERS, COLLEGE - FINE & APPLIED ARTS	838	867	959	44	218	41	121	14%
31123	TEACHERS, COLLEGE - FOREIGN LANGUAGES	372	386	432	28	138	26	60	16%
31124	TEACHERS, COLLEGE - HEALTH PROFESSIONS	685	719	803	48	204	38	118	17%
31125	TEACHERS, COLLEGE - HOME ECONOMICS	246	254	283	21	105	20	37	15%
31126	TEACHERS, COLLEGE - LAW	80	84	95	7	33	6	15	19%
31127	TEACHERS, COLLEGE - LETTERS	932	967	1,068	68	333	62	136	15%
31128	TEACHERS, COLLEGE - LIBRARY SCIENCES	90	94	106	7	35	6	16	18%
31129	TEACHERS, COLLEGE - MATHEMATICS	384	398	442	20	91	16	58	15%
31130	TEACHERS, COLLEGE - AREA STUDIES	*	*	*	0	2	0	1	*
31131	TEACHERS, COLLEGE - BIOLOGICAL SCIENCES	685	716	793	43	171	30	108	16%
31132	TEACHERS, COLLEGE - BUSINESS & MANAGEMENT	1,395	1,454	1,629	102	480	93	234	17%
31133	TEACHERS, COLLEGE - COMMUNICATIONS	87	91	100	4	20	3	13	15%
31134	TEACHERS, COLLEGE - COMPUTER & INFO. SCIENCES	136	141	159	7	36	6	23	17%
31135	TEACHERS, COLLEGE - EDUCATION	1,337	1,390	1,556	74	329	63	219	16%
31136	TEACHERS, COLLEGE - ENGINEERING	395	410	462	24	112	21	67	17%
31137	TEACHERS, COLLEGE - MILITARY SCIENCES	26	26	30	0	5	0	4	15%

* OCCUPATIONS WITH EMPLOYMENT OF LESS THAN 25

OCCUPATIONS IN OES CODE ORDER

OES CODE	OES OCCUPATIONAL TITLE	EMPLOYMENT			JOB OPPORTUNITIES			GROWTH	
		1986	1987	1991	1986-87	1986-91	1990-91	1986-91	
31138	TEACHERS, COLLEGE - PHYSICAL SCIENCES	442	459	512	29	143	27	70	16%
31139	TEACHERS, COLLEGE - PSYCHOLOGY	283	292	325	16	78	14	42	15%
31140	TEACHERS, COLLEGE - PUBLIC AFFAIRS & SERVICES	278	289	327	16	77	14	49	18%
31141	TEACHERS, COLLEGE - SOCIAL SCIENCES	848	880	976	53	261	49	128	15%
31142	TEACHERS, COLLEGE - THEOLOGY	*	*	*	0	5	0	4	*
31143	TEACHERS, COLLEGE - INTERDISCIPLINARY STUDIES	314	326	353	18	69	11	39	12%
31144	TEACHERS, COLLEGE - BUSINESS & COMMERCE TECHNOLOG	373	385	421	23	110	19	48	13%
31145	TEACHERS, COLLEGE - DATA PROCESSING TECHNOLOGIES	*	*	*	1	6	1	5	*
31146	TEACHERS, COLLEGE - HEALTH & PARAMEDICAL SERVICES	190	195	212	9	43	7	22	12%
31147	TEACHERS, COLLEGE - MECHANICAL & ENGINEER. TECHNO	482	501	549	23	118	19	67	14%
31148	TEACHERS, COLLEGE - NATURAL SCIENCES	*	*	*	0	1	0	0	*
31149	TEACHERS, COLLEGE - PUBLIC SERVICE RELATED TECHNO	65	67	69	1	8	0	4	6%
31302	TEACHERS, PRESCHOOL & KINDERGARTEN	3,626	3,818	4,679	341	1,958	401	1,053	29%
31305	TEACHERS, ELEMENTARY SCHOOL	63	67	84	4	36	5	21	33%
31314	TEACHERS & INSTRUCTORS, VOCATIONAL ED. & TRAINING	547	577	714	43	298	52	167	31%
31317	INSTRUCTORS, NONVOCATIONAL EDUCATION	2,204	2,251	2,497	86	583	105	293	13%
31321	INSTRUCTORS & COACHES, SPORTS & PHYSICAL TRNG.	1,774	1,885	2,377	139	850	163	603	34%
31323	FARM & HOME MANAGEMENT ADVISORS	41	43	49	3	13	2	8	20%
31324	TEACHERS, ELEMENTARY - ART	346	359	400	24	133	24	54	16%
31325	TEACHERS, ELEMENTARY - ACADEMIC	20,383	21,155	23,271	1,696	7,841	1,566	2,888	14%
31326	TEACHERS, ELEMENTARY - HOME ECONOMICS	247	255	281	15	88	16	34	14%
31327	TEACHERS, ELEMENTARY - MUSIC	710	736	815	51	272	51	105	15%
31328	TEACHERS, ELEMENTARY - PHYSICAL EDUCATION	884	916	1,015	67	339	65	131	15%
31329	TEACHERS, ELEMENTARY - SPECIAL &/OR EXCEPT. EDUCA	2,485	2,577	2,865	199	979	194	380	15%
31330	TEACHERS, ELEMENTARY - VOCATIONAL	163	168	188	10	60	11	25	15%
31331	TEACHERS, SUBSTITUTE	4,201	4,370	4,868	354	1,689	337	667	16%
31332	TEACHERS, SECONDARY - COMMERCIAL & BUSINESS	797	826	908	48	239	41	111	14%
31333	TEACHERS, SECONDARY - ENGLISH	1,937	2,013	2,223	130	604	115	286	15%
31334	TEACHERS, SECONDARY - FINE ARTS	705	733	804	42	210	36	99	14%
31335	TEACHERS, SECONDARY - PERFORMING ARTS	156	164	181	9	48	9	25	16%
31336	TEACHERS, SECONDARY - FOREIGN LANGUAGES	462	481	530	28	140	24	68	15%
31337	TEACHERS, SECONDARY - HOME ECONOMICS	458	476	522	24	134	22	64	14%
31338	TEACHERS, SECONDARY - INDUSTRIAL ARTS	672	697	767	40	202	34	95	14%
31339	TEACHERS, SECONDARY - MATHEMATICS	1,238	1,284	1,419	81	383	71	181	15%
31340	TEACHERS, SECONDARY - PHYSICAL EDUCATION	917	951	1,047	54	279	50	130	14%
31341	TEACHERS, SECONDARY - READING	360	373	410	19	104	18	50	14%
31342	TEACHERS, SECONDARY - SCIENCE	1,066	1,106	1,220	67	328	61	154	14%
31343	TEACHERS, SECONDARY - SOCIAL STUDIES	1,332	1,384	1,527	87	413	78	195	15%
31344	TEACHERS, SECONDARY - SPECIAL &/OR EXCEPT. ED.	802	833	923	49	250	44	121	15%
31345	TEACHERS, SECONDARY - VOCATIONAL TRAINING	370	384	419	19	104	16	49	13%
31399	ALL OTHER TEACHERS & INSTRUCTORS	4,299	4,487	5,049	409	2,012	396	750	17%
31502	LIBRARIANS, PROFESSIONAL	1,576	1,641	1,835	125	695	123	259	16%
31505	TECHNICAL ASSISTANTS, LIBRARY	517	536	599	40	227	40	82	16%
31508	AUDIO-VISUAL SPECIALISTS	219	227	256	14	81	13	37	17%
31511	CURATORS, ARCHIVISTS, & MUSEUM TECHNICIANS	95	98	121	4	39	5	26	27%
31514	VOCATIONAL & EDUCATIONAL COUNSELORS	2,084	2,171	2,469	135	743	129	385	18%
31517	INSTRUCTIONAL COORDINATORS	147	154	195	4	58	5	48	33%

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OES CODE	OES OCCUPATIONAL TITLE	EMPLOYMENT			JOB OPPORTUNITIES			GROWTH	
		1986	1987	1991	1986-87	1986-91	1990-91	1986-91	
32000	HEALTH PRACTITIONERS, TECHNICIANS, & RELATED	63	66	84	4	35	5	21	33%
32102	PHYSICIANS & SURGEONS	5,397	5,593	6,560	370	2,193	442	1,163	22%
32105	DENTISTS	1,104	1,146	1,366	61	399	80	262	24%
32108	OPTOMETRISTS	245	256	304	12	101	16	59	24%
32111	PODIATRISTS	45	48	57	2	20	3	12	27%
32114	VETERINARIANS & VETERINARY INSPECTORS	27	27	29	0	3	0	2	7%
32199	ALL OTHER HEALTH DIAG./TREATING PRACTITIONERS	80	84	100	6	50	7	20	25%
32302	RESPIRATORY THERAPISTS	741	769	911	52	320	65	170	23%
32305	OCCUPATIONAL THERAPISTS	216	227	268	10	89	12	52	24%
32308	PHYSICAL THERAPISTS	628	653	773	37	262	47	145	23%
32311	CORRECTIVE & MANUAL ARTS THERAPISTS	36	37	44	0	10	0	8	22%
32314	SPEECH PATHOLOGISTS & AUDIOLOGISTS	545	567	646	31	203	35	101	19%
32317	RECREATIONAL THERAPISTS	116	120	140	6	45	8	24	21%
32399	ALL OTHER THERAPISTS	72	76	89	2	26	3	17	24%
32502	REGISTERED NURSES	19,139	19,886	23,574	1,596	9,298	1,934	4,435	23%
32505	LICENSED PRACTICAL NURSES	6,046	6,311	7,624	556	3,356	697	1,578	26%
32508	EMERGENCY MEDICAL TECHNICIANS	375	396	480	33	212	37	105	28%
32511	PHYSICIAN'S ASSISTANTS	618	644	762	44	316	59	144	23%
32514	OPTICIANS, DISPENSING & MEASURING	420	441	537	26	192	34	117	28%
32517	PHARMACISTS	1,875	1,966	2,370	170	1,026	198	495	26%
32521	DIETITIANS & NUTRITIONISTS	427	441	511	18	174	25	84	20%
32523	DIETETIC TECHNICIANS	598	626	752	52	315	59	154	26%
32902	MEDICAL & CLINICAL LABORATORY TECHNOLOGISTS	1,704	1,763	2,075	121	768	151	371	22%
32905	MEDICAL & CLINICAL LABORATORY TECHNICIANS	1,099	1,142	1,373	71	470	93	274	25%
32908	DENTAL HYGIENISTS	1,020	1,058	1,259	89	536	110	239	23%
32911	MEDICAL RECORDS TECHNICIANS & TECHNOLOGISTS	521	537	621	36	256	45	100	19%
32914	NUCLEAR MEDICINE TECHNOLOGISTS	291	301	353	17	120	23	62	21%
32917	RADIOLOGIC TECHNOLOGISTS	714	739	872	48	302	62	158	22%
32921	RADIOLOGIC TECHNICIANS	708	737	881	45	312	60	173	24%
32923	ELECTROENCEPHALOGRAPH TECHNICIANS & TECHNOLOGISTS	139	142	160	6	43	7	21	15%
32926	ELECTROCARDIOGRAPH TECHS	184	192	227	12	76	15	43	23%
32928	SURGICAL TECHNICIANS	589	615	735	40	253	50	146	25%
32999	ALL OTHER PARAPROF., PROFESSIONALS, & TECHS	3,429	3,596	4,438	320	2,011	404	1,009	29%
34002	WRITERS & EDITORS	1,204	1,264	1,565	79	620	110	361	30%
34005	TECHNICAL WRITERS	380	406	541	20	175	31	161	42%
34008	PUBLIC REL. SPECIALISTS & PUBLICITY WRITERS	732	771	951	38	331	46	219	30%
34011	REPORTERS & CORRESPONDENTS	833	876	1,074	64	430	78	241	29%
34014	BROADCAST NEWS ANALYSTS	115	119	135	5	29	5	20	17%
34017	ANNOUNCERS, RADIO & TELEVISION	508	528	605	25	136	22	97	19%
34021	ANNOUNCERS, EXC. RADIO & TELEVISION	*	*	*	0	0	0	0	*
34023	PHOTOGRAPHERS	577	608	756	35	244	42	179	31%
34026	CAMERA OPERATORS, TELEVISION & MOTION PICTURE	97	102	118	4	27	2	21	22%
34028	BROADCAST TECHNICIANS	228	237	267	7	51	7	39	17%
34032	FILM EDITORS	53	55	63	3	21	3	10	19%
34035	ARTISTS & RELATED WORKERS	863	916	1,167	66	496	86	304	35%
34038	DESIGNERS, EXC. INTERIOR DESIGNERS	1,879	1,999	2,532	130	841	153	653	35%
34041	INTERIOR DESIGNERS	53	56	73	2	21	3	20	38%

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OES CODE	OES OCCUPATIONAL TITLE	EMPLOYMENT			JOB OPPORTUNITIES			GROWTH	
		1986	1987	1991	1986-87	1986-91	1990-91	1986-91	
34044	MERCHANDISE DISPLAYERS & WINDOW TRIMMERS	158	165	214	13	97	17	56	35%
34047	MUSIC DIRECTORS, SINGERS, COMPOSERS, & RELATED	*	*	*	0	4	0	4	*
34051	MUSICIANS, INSTRUMENTAL	907	965	1,238	85	509	102	331	36%
34053	DANCERS & CHOREOGRAPHERS	*	*	*	1	12	2	5	*
34056	PRODUCERS, DIRECTORS, ACTORS, & OTHER ENTERTAINER	258	274	355	22	135	27	97	38%
34058	ATHLETES, COACHES, UMPIRES, & RELATED WORKERS	221	235	305	18	116	21	84	38%
39002	AIRPLANE DISPATCHERS & AIR TRAFFIC CONTROLLERS	381	389	439	11	76	14	58	15%
39005	TRAFFIC TECHNICIANS	36	37	43	2	10	1	7	19%
39008	RADIO OPERATORS	137	143	166	7	44	7	29	21%
39011	FUNERAL DIRECTORS & MORTICIANS	175	185	236	11	79	14	61	35%
39014	EMBALMERS	79	83	107	5	36	7	28	35%
39999	ALL OTHER PROFESSIONAL, PARAPROFESSIONAL, & TECHN	10,268	10,680	12,465	521	3,265	607	2,197	21%
	SALES & RELATED OCCUPATIONS	151,626	159,615	195,840	12,860	74,044	15,064	44,214	29%
41002	FIRST LINE SUPERVISORS & MANAGER/SUPERVISORS-SALE	24,878	26,153	31,819	2,012	11,605	2,332	6,941	28%
43002	SALES AGENTS & PLACERS, INSURANCE	3,138	3,301	3,910	237	1,247	241	772	25%
43005	BROKERS, REAL ESTATE	788	837	999	82	431	82	211	27%
43008	SALES AGENTS, REAL ESTATE	2,148	2,275	2,716	232	1,181	232	568	26%
43011	APPRAISERS, REAL ESTATE	493	519	616	38	248	42	123	25%
43014	SALES AGTS., SECURITIES/COMMODITIES/FIN. SERV.	2,197	2,303	2,753	172	948	192	556	25%
43017	SALES AGENTS, SELECTED BUSINESS SERVICES	1,881	2,000	2,587	173	1,118	223	706	38%
43021	TRAVEL AGENTS	1,587	1,696	2,163	160	889	184	576	36%
43023	SALES AGENTS, ADVERTISING	525	551	681	38	247	50	156	30%
43099	ALL OTHER SALES REPS. & SALESPERSONS, SERVICE	639	677	845	51	325	59	206	32%
49002	SALES ENGINEERS	740	785	1,080	41	376	71	340	46%
49005	SALES REPS., SCIENTIFIC, EXC. RETAIL	1,362	1,451	1,803	89	636	108	441	32%
49008	OTHER SALES REPRESENTATIVES, EXC. RETAIL	4,858	5,142	6,496	408	2,663	513	1,638	34%
49011	SALESPERSONS, RETAIL	35,958	37,921	46,934	3,020	17,207	3,574	10,976	31%
49014	SALESPERSONS, PARTS	221	235	298	17	111	20	77	35%
49017	COUNTER & RENTAL CLERKS	2,457	2,634	3,468	279	1,696	352	1,011	41%
49021	STOCK CLERKS, SALES FLOOR	8,315	8,773	10,705	553	3,067	611	2,390	29%
49023	CASHIERS	20,203	21,274	25,974	1,997	11,306	2,310	5,771	29%
49026	NEWS VENDORS, PHONE SOLIC., DOOR-TO-DOOR SALES	511	539	692	49	321	66	181	35%
49032	DEMONSTRATORS, PROMOTERS, & MODELS	326	343	447	29	198	40	121	37%
49999	ALL OTHER SALES & RELATED WORKERS	38,401	40,236	48,854	3,183	18,224	3,762	10,453	27%
	CLERICAL & ADMINISTRATIVE SUPPORT OCCUPATIONS	237,121	249,037	300,625	19,799	119,829	23,033	63,504	27%
51002	FIRST LINE SUPERVISORS-CLERICAL & ADMIN. SUPPORT	8,093	8,523	10,355	549	3,548	654	2,262	28%
53102	TELLERS	6,208	6,507	7,777	616	3,408	709	1,569	25%
53105	NEW ACCOUNTS CLERKS	1,109	1,165	1,396	116	689	137	287	26%
53108	TRANSIT CLERKS	197	205	242	17	93	18	45	23%
53111	LOAN INTERVIEWERS	224	234	280	14	90	14	56	25%
53114	CREDIT AUTHORIZERS	439	461	564	37	247	47	125	28%

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OES CODE	OES OCCUPATIONAL TITLE	EMPLOYMENT			JOB OPPORTUNITIES			GROWTH	
		1986	1987	1991	1986-87	1986-91	1990-91	1986-91	
53117	CREDIT CHECKERS	399	419	524	32	236	43	125	31%
53121	LOAN & CREDIT CLERKS	2,418	2,533	3,016	219	1,276	252	598	25%
53123	ADJUSTMENT CLERKS	1,464	1,533	1,836	130	779	150	372	25%
53126	STATEMENT CLERKS	514	537	636	47	266	54	122	24%
53128	BROKERAGE CLERKS	197	205	243	17	101	20	46	23%
53302	INSURANCE ADJUSTERS, EXAMINERS, & INVESTIGATORS	1,355	1,422	1,677	95	512	100	322	24%
53305	INSURANCE APPRAISERS, AUTO DAMAGE	82	89	103	6	38	5	21	26%
53308	INSURANCE EXAMINING CLERKS	146	154	179	10	71	11	33	23%
53311	INSURANCE CLAIMS CLERKS	812	846	988	72	398	80	176	22%
53314	INSURANCE POLICY PROCESSING CLERKS	1,363	1,432	1,690	136	717	143	327	24%
53502	WELFARE ELIGIBILITY WORKERS & INTERVIEWERS	764	801	927	58	334	62	163	21%
53505	INVESTIGATORS, CLERICAL	294	312	410	27	175	37	116	39%
53508	BILL & ACCOUNT COLLECTORS	1,925	2,028	2,524	151	966	187	599	31%
53702	COURT CLERKS	550	574	657	45	259	46	107	19%
53705	MUNICIPAL CLERKS	79	82	96	2	25	2	17	22%
53708	LICENSE CLERKS	384	399	449	29	167	31	65	17%
53802	TRAVEL CLERKS	158	165	205	12	86	15	47	30%
53805	RESERVATION & TRANSPORTATION TICKET AGENTS	1,176	1,260	1,604	111	640	127	428	36%
53808	HOTEL DESK CLERKS	1,962	2,088	2,653	219	1,261	261	691	35%
53902	LIBRARY ASSISTANTS & BOOKMOBILE DRIVERS	1,331	1,385	1,546	72	395	63	215	16%
53905	TEACHER AIDES & ED. ASSISTANTS, CLERICAL	8,883	9,233	10,269	705	3,396	665	1,386	16%
53908	ADVERTISING CLERKS	232	244	303	20	135	26	71	31%
53911	PROOFREADERS & COPY MARKERS	195	205	254	7	81	10	59	30%
53914	REAL ESTATE CLERKS	560	585	684	47	273	50	124	22%
55100	SECRETARIES	16,026	17,040	21,478	1,703	10,330	2,049	5,452	34%
55102	LEGAL SECRETARIES	2,957	3,145	4,050	346	2,035	433	1,093	37%
55105	MEDICAL SECRETARIES	1,828	1,899	2,268	157	982	198	440	24%
55199	SECRETARIES, OTHER	15,523	16,189	18,705	1,429	7,783	1,528	3,182	20%
55302	STENOGRAPHERS	1,078	1,122	1,319	76	511	89	241	22%
55305	RECEPTIONISTS & INFORMATION CLERKS	8,262	8,689	10,696	740	4,708	910	2,434	29%
55308	TYPISTS	9,374	9,751	11,345	844	5,065	975	1,971	21%
55311	TYPISTS, WORD PROCESSING EQUIPMENT	1,995	2,110	2,687	132	964	168	692	35%
55314	PERSONNEL CLERKS, EXC. PAYROLL & TIMEKEEPING	1,228	1,280	1,528	88	685	110	300	24%
55317	CORRESPONDENCE CLERKS	269	281	336	23	142	26	67	25%
55321	FILE CLERKS	2,524	2,646	3,185	232	1,539	282	661	26%
55323	ORDER CLERKS - MATERIALS, MERCH., & SERVICE	2,812	2,957	3,667	232	1,609	306	855	30%
55326	PROCUREMENT CLERKS	561	591	721	22	219	28	160	29%
55328	STATISTICAL CLERKS	1,363	1,418	1,691	107	690	127	328	24%
55332	INTERVIEWING CLERKS, EXC. PERSONNEL & WELFARE	2,158	2,268	2,867	183	1,170	247	709	33%
55335	CUSTOMER SERVICE REPRESENTATIVES, UTILITIES	1,557	1,621	1,823	139	700	136	266	17%
55338	BOOKKEEPING, ACCOUNTING, & AUDITING CLERKS	24,094	25,377	30,929	2,122	12,916	2,471	6,835	28%
55341	PAYROLL & TIMEKEEPING CLERKS	1,750	1,839	2,231	88	799	105	481	27%
55344	BILLING, COST & RATE CLERKS	2,572	2,696	3,341	202	1,463	273	769	30%
55347	GENERAL OFFICE CLERKS	30,719	32,306	39,073	2,925	17,039	3,359	8,354	27%
56002	BILLING, POSTING, & CALCULATING MACHINE OPERS.	1,422	1,494	1,799	102	691	119	377	27%
56005	DUPLICATING MACHINE OPERATORS	214	224	289	17	134	20	75	35%
56008	MAIL MACHINE OPERATORS, PREPARATION & HANDLING	272	286	357	24	182	33	85	31%

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OES CODE	OES OCCUPATIONAL TITLE	EMPLOYMENT			JOB OPPORTUNITIES			GROWTH	
		1986	1987	1991	1986-87	1986-91	1990-91	1986-91	
56011	COMPUTER OPERATORS, EXC. PERIPHERAL EQUIPMENT	2,718	2,878	3,551	170	1,155	196	833	31%
56014	PERIPHERAL EDP EQUIPMENT OPERATORS	1,454	1,519	1,787	123	771	140	333	23%
56017	DATA ENTRY KEYERS, EXC. COMPOSING	4,625	4,886	6,134	295	1,961	372	1,509	33%
56021	DATA KEYERS, COMPOSING	1,169	1,225	1,443	100	651	117	274	23%
56099	ALL OTHER OFFICE MACHINE OPERATORS	1,058	1,108	1,348	100	665	124	290	27%
57102	SWITCHBOARD OPERATORS	4,557	4,798	5,865	430	2,860	530	1,308	29%
57105	DIRECTORY ASSISTANCE OPERATORS	532	554	621	54	273	54	89	17%
57108	CENTRAL OFFICE OPERATORS	844	883	1,002	88	455	89	158	19%
57111	TELEGRAPH & TELETYPE OPERATORS	41	44	54	1	18	1	13	32%
57302	MAIL CLKS, EX. MAIL MACH. OPS. & POSTAL SERV.	1,187	1,245	1,534	91	603	113	347	29%
57305	POSTAL MAIL CARRIERS	5,333	5,444	6,120	223	1,390	290	787	15%
57308	POSTAL SERVICE CLERKS	830	843	938	32	235	45	108	13%
57311	MESSENGERS	516	542	669	34	224	42	153	30%
58002	DISPATCHERS-POLICE, FIRE, & AMBULANCE	780	815	940	49	271	47	160	21%
58005	DISPATCHERS - EXC. POLICE, FIRE, & AMBULANCE	1,858	1,956	2,370	102	693	116	512	28%
58008	PRODUCTION, PLANNING, & EXPEDITING CLERKS	2,681	2,868	3,741	292	1,824	364	1,060	40%
58011	TRANSPORTATION AGENTS	293	314	399	28	159	32	106	36%
58014	METER READERS, UTILITIES	717	748	850	35	188	31	133	19%
58017	WEIGHERS/MEASURERS/CHECKERS - RECORDKEEPING	318	332	418	11	135	23	100	31%
58021	MARKING CLERKS	759	801	1,049	76	510	108	290	38%
58023	STOCK CLERKS - STOCKROOM, WAREHOUSE, OR YARD	11,102	11,695	14,396	774	4,865	933	3,294	30%
58026	ORDER FILLERS, WHOLESALE & RETAIL SALES	2,033	2,130	2,563	119	692	134	530	26%
58028	TRAFFIC, SHIPPING, & RECEIVING CLERKS	6,546	6,888	8,413	426	2,762	502	1,867	29%
58099	ALL OTHER MATERIAL RECORDING/SCHEDULING/DIST.	2,191	2,272	2,624	121	748	130	433	20%
59999	ALL OTHER CLERICAL & ADMINISTRATIVE SUPPORT	8,908	9,394	11,324	474	2,703	489	2,416	27%
	SERVICE OCCUPATIONS	204,824	216,721	266,231	19,695	109,899	22,229	61,407	30%
61000	FIRST LINE SUPERS. & MGRS./SUPERS. - SERVICE	800	851	1,081	63	477	81	281	35%
61002	FIRE FIGHTING & PREVENTION SUPERVISORS	370	390	454	22	108	18	84	23%
61005	POLICE & DETECTIVE SUPERVISORS	1,494	1,550	1,757	63	356	58	263	18%
61008	HOUSEKEEPERS	1,063	1,115	1,374	81	519	100	311	29%
61099	ALL OTHER SERVICE SUPERVISORS & MGR./SUPERVISORS	2,447	2,583	3,199	225	1,387	268	752	31%
63002	FIRE INSPECTORS	97	101	116	2	23	2	19	20%
63008	FIRE FIGHTERS	2,233	2,315	2,620	106	547	101	387	17%
63011	POLICE DETECTIVES	940	962	1,075	26	191	32	135	14%
63014	POLICE PATROL OFFICERS	4,793	4,992	5,646	241	1,187	222	853	18%
63017	CORRECTION OFFICERS & JAILERS	3,221	3,360	3,850	308	1,568	312	629	20%
63021	PARKING ENFORCEMENT OFFICERS	*	*	*	0	0	0	0	*
63023	BAILIFFS	129	133	154	6	35	5	25	19%
63026	U.S. MARSHALLS	49	50	55	3	19	3	6	12%
63032	SHERIFFS & DEPUTY SHERIFFS	345	362	414	16	99	16	69	20%
63035	DETECTIVES & INVESTIGATORS, EXC. PUBLIC	247	267	365	21	137	27	118	48%
63038	RAILROAD & TRANSIT POLICE & SPECIAL AGENTS	*	*	*	0	5	0	5	*
63041	FISH & GAME WARDENS	*	*	*	0	1	0	1	*
63044	CROSSING GUARDS	*	*	*	0	2	0	1	*

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		1986	1987	1991	1986-87	1986-91	1990-91	1986-91	
63047	GUARDS & WATCH GUARDS	9,268	9,832	12,584	638	3,992	790	3,316	36%
63099	ALL OTHER PROTECTIVE SERVICE WORKERS	2,397	2,524	3,039	202	1,109	222	642	27%
65000	FOOD & BEVERAGE SERVICE OCCUPATIONS	1,119	1,185	1,465	104	612	117	346	31%
65002	HOSTS/HOSTESSES-RESTAURANT, LOUNGE, OR COFFEE SHO	2,639	2,825	3,546	313	1,708	349	907	34%
65005	BARTENDERS	5,065	5,403	6,761	487	2,686	536	1,696	33%
65008	WAITERS & WAITRESSES	27,165	29,000	36,236	3,269	17,381	3,638	9,071	33%
65011	FOOD SERVERS, OUTSIDE	820	862	1,072	54	355	72	252	31%
65014	DINING ROOM/CAFETERIA ATTENDTS. & BARTDR. HELPERS	7,542	8,057	10,103	591	3,128	617	2,561	34%
65017	COUNTER ATTDTS.- LUNCHROOM, COFFEE SHOP, & CAFE	4,766	5,037	6,071	507	2,773	551	1,305	27%
65021	BAKERS, BREAD & PASTRY	900	959	1,174	84	469	91	274	30%
65023	BUTCHERS & MEAT CUTTERS	1,518	1,593	1,924	98	608	115	406	27%
65026	COOKS, RESTAURANT	8,510	9,082	11,380	874	4,662	952	2,870	34%
65028	COOKS, INSTITUTION OR CAFETERIA	3,238	3,373	3,919	218	1,295	228	681	21%
65032	COOKS, SPECIALTY FAST FOOD	3,948	4,200	5,162	382	2,025	402	1,214	31%
65035	COOKS, SHORT ORDER	165	174	217	9	73	11	52	32%
65038	FOOD PREPARATION WORKERS	14,789	15,671	19,107	1,473	7,915	1,605	4,318	29%
65041	COMBINED FOOD PREPARATION & SERVICE WORKERS	20,834	22,272	27,798	2,344	12,180	2,533	6,964	33%
65099	ALL OTHER FOOD SERVICE WORKERS	2,676	2,795	3,272	215	1,216	230	596	22%
66002	DENTAL ASSISTANTS	2,164	2,244	2,662	213	1,275	264	498	23%
66005	MEDICAL ASSISTANTS	2,122	2,205	2,626	187	1,136	232	504	24%
66008	NURSING AIDES, ORDERLIES, & ATTENDANTS	8,702	9,034	10,654	768	4,472	933	1,952	22%
66011	HOME HEALTH AIDES	468	495	624	34	218	41	156	33%
66014	PSYCHIATRIC AIDES	365	381	465	33	204	41	100	27%
66017	PHYSICAL & CORRECTIVE THERAPY ASSISTS./AIDES	581	604	732	50	319	63	151	26%
66021	OCCUPATIONAL THERAPY ASSISTANTS & AIDES	289	302	367	27	164	33	78	27%
66023	AMBULANCE DRIVERS/ATTDTS.-EX. EMER. MED. TECHS.	43	44	53	2	16	3	10	23%
66026	PHARMACY ASSISTANTS	462	478	573	35	238	42	111	24%
66099	ALL OTHER HEALTH SERVICE WORKERS	577	603	732	31	206	38	155	27%
67002	MAIDS & HOUSEKEEPING CLEANERS	8,268	8,739	10,837	924	5,277	1,104	2,569	31%
67005	JANITORS & CLEANERS, EXC. MAIDS & HOUSEKEEPING	22,300	23,472	28,624	1,903	11,600	2,297	6,324	28%
67008	PEST CONTROLLERS & ASSISTANTS	985	1,051	1,396	90	566	118	411	42%
67011	ELEVATOR OPERATORS	*	*	*	0	0	0	0	*
67099	ALL OTHER CLEANING/BLDG. SERV., EX. PRIV. HOUSE	1,540	1,609	1,914	118	728	137	374	24%
68002	BARBERS	393	419	537	36	228	46	144	37%
68005	HAIRDRESSERS, HAIRSTYLISTS, & COSMETOLOGISTS	6,005	6,384	8,168	751	4,367	934	2,163	36%
68008	MANICURISTS	426	454	590	51	320	65	164	38%
68011	SHAMPOOERS	63	67	87	7	46	9	24	38%
68014	AMUSEMENT & RECREATION ATTENDANTS	1,917	2,033	2,560	161	1,010	195	643	34%
68017	GUIDES	66	71	91	5	41	6	25	38%
68021	USHERS, LOBBY ATTENDANTS, & TICKET TAKERS	544	578	746	47	306	60	202	37%
68023	BAGGAGE PORTERS & BELLHOPS	858	917	1,166	70	387	76	308	36%
68026	FLIGHT ATTENDANTS	450	484	627	64	360	77	177	39%
68032	WARDROBE, LOCKER, & DRESSING ROOM ATTENDANTS	184	196	254	14	98	19	70	38%
68035	SOCIAL WELFARE SERVICE AIDES	602	630	750	45	279	51	148	25%
68038	CHILD CARE WORKERS	3,378	3,570	4,393	392	2,234	457	1,015	30%
68041	FUNERAL ATTENDANTS	107	114	146	9	66	11	39	36%
69999	ALL OTHER SERVICE WORKERS	5,334	5,622	6,816	503	2,890	573	1,482	28%

* OCCUPATIONS WITH EMPLOYMENT OF LESS THAN 25

OCCUPATIONS IN OES CODE ORDER

OES CODE	OES OCCUPATIONAL TITLE	EMPLOYMENT			JOB OPPORTUNITIES			GROWTH	
		1986	1987	1991	1986-87	1986-91	1990-91	1986-91	
	AGRICULTURAL, FORESTRY, & RELATED OCCUPATIONS	6,285	6,648	8,081	545	3,169	583	1,796	29%
72002	FIRST LINE SUPERVISORS - AGRI., FORESTRY, & REL.	58	61	68	3	16	2	10	17%
73002	FALLERS & BUCKERS	143	147	160	8	34	6	17	12%
73005	CHOKE SETTERS	47	48	50	1	8	1	3	6%
73008	LOG HANDLING EQUIPMENT OPERATORS	52	53	56	1	10	1	4	8%
73011	LOGGING TRACTOR OPERATORS	111	113	123	3	19	2	12	11%
73099	ALL OTHER TIMBER CUTTING & RELATED WORKERS	75	80	90	6	24	4	15	20%
79002	FOREST & CONSERVATION WORKERS	384	389	427	7	72	12	43	11%
79008	LOG GRADERS & SCALERS	42	43	46	1	6	0	4	10%
79011	GRADERS & SORTERS, AGRICULTURAL PRODUCTS	*	*	*	1	0	0	4-	*
79014	GARDENERS & GROUNDSKEEPERS, EXC. FARM	4,267	4,545	5,624	431	2,445	465	1,357	32%
79017	ANIMAL CARETAKERS, EXC. FARM	429	451	548	30	224	33	119	28%
79021	FARM EQUIPMENT OPERATORS	*	*	*	0	1	0	1	*
79999	ALL OTHER AGRI., FORESTRY, FISHING, & RELATED	651	692	866	53	310	57	215	33%
	PRODUCTION, MAINTENANCE, & MATERIAL HANDLING	329,121	347,818	424,670	23,708	137,674	26,325	95,549	29%
81002	FIRST LINE MGRS./SUPRS.-MECHS./INSTLLRS./REPRS.	2,646	2,764	3,295	170	1,091	189	649	25%
81005	FIRST LINE MGRS./SUPRS.-CONST. TRADES & EXTRACT	5,055	5,428	6,683	442	2,270	423	1,628	32%
81008	FIRST LINE MGRS./SUPERS. - PRODUCTION & OPERS.	5,571	5,922	7,608	368	2,490	471	2,037	37%
81011	FIRST LINE MGRS./SUPERS. - TRANSPORT. OPERATIVES	841	888	1,060	67	407	70	219	26%
81017	FIRST LINE MGRS./SUPERS. - LABORERS & HELPERS	418	453	544	33	217	36	126	30%
81099	ALL OTHER FIRST LINE MGRS. - MAIN./PROD./CONST.	631	669	826	41	343	53	195	31%
83000	INSPECTORS & RELATED OCCUPATIONS	61	65	78	3	25	3	17	28%
83002	PRECISION INSPECTORS, TESTERS, & GRADERS	4,237	4,557	6,083	415	2,512	511	1,846	44%
83005	PRODUCTION INSPECTORS, TESTERS, & GRADERS	3,175	3,401	4,257	277	1,541	290	1,082	34%
83099	ALL OTHER INSPECTORS, TESTERS, & RELATED	298	315	391	22	145	25	93	31%
85110	MACHINERY MAINTENANCE MECHANICS	1,994	2,096	2,578	102	781	137	584	29%
85112	MACHINERY MAINTENANCE MECHANICS, TEXTILES	40	44	54	2	18	2	14	35%
85113	MACHINERY MAINTENANCE MECHANICS, SEWING MACHINES	35	40	52	2	19	1	17	49%
85116	MACHINERY MAINTENANCE MECHANICS, MARINE EQUIPMENT	50	53	61	2	15	3	11	22%
85117	UNDERGROUND MINE MACHINERY MECHANICS	135	134	135	7	13	5	0	0%
85118	MACHINERY MAINT. MECHS., WATER/POWER GENER. PLANT	377	388	434	12	91	11	57	15%
85119	ALL OTHER MACHINERY MAINTENANCE MECHANICS	174	191	209	20	45	7	35	20%
85123	MILLWRIGHTS	321	340	300	26	22	13	21-	-7%
85126	REFRACTORY MATLS. REPAIRERS, EXC. BRICK MASONS	30	34	42	1	14	1	12	40%
85128	MACHINERY MAINTENANCE WORKERS	426	453	537	23	160	23	111	26%
85132	MAINTENANCE REPAIRERS, GENERAL UTILITY	12,653	13,326	15,944	775	4,667	815	3,291	26%
85302	AUTOMOTIVE MECHANICS	10,166	10,586	12,422	559	3,276	622	2,256	22%
85305	AUTOMOTIVE BODY & RELATED REPAIRERS	1,938	2,026	2,432	120	723	138	494	25%
85308	MOTORCYCLE REPAIRERS	*	*	*	1	8	1	7	*
85311	BUS & TRUCK MECHS., & DIESEL ENG. SPECIALISTS	3,720	3,915	4,664	219	1,316	232	944	25%
85314	MOBILE HEAVY EQUIP. MECHANICS, EXC. ENGINES	775	845	953	64	221	34	178	23%

* OCCUPATIONS WITH EMPLOYMENT OF LESS THAN 25

OCCUPATIONS IN OES CODE ORDER

OES CODE	OES OCCUPATIONAL TITLE	EMPLOYMENT			JOB OPPORTUNITIES			GROWTH	
		1986	1987	1991	1986-87	1986-91	1990-91	1986-91	
85317	RAIL CAR REPAIRERS	336	349	406	23	138	25	70	21%
85321	FARM EQUIPMENT MECHANICS	99	103	127	4	34	5	28	28%
85323	AIRCRAFT MECHANICS	1,636	1,714	2,030	94	513	98	394	24%
85326	AIRCRAFT ENGINE SPECIALISTS	165	182	234	17	76	14	69	42%
85328	SMALL ENGINE SPECIALISTS	189	198	238	9	67	10	49	26%
85502	CENTRAL OFFICE & PBX INSTALLERS & REPAIRERS	546	568	640	30	147	27	94	17%
85505	FRAME WIRERS, CENTRAL OFFICE	763	792	893	34	176	28	130	17%
85511	SIGNAL OR TRACK SWITCH MAINTAINERS	40	43	52	1	15	1	12	30%
85514	RADIO MECHANICS	382	398	456	17	102	15	74	19%
85599	ALL OTHER COMMUN. EQUIP. MECHS./INSTALL./REPRS.	*	*	*	0	0	0	0	*
85702	TELEPHONE & CABLE TV LINE INSTALLERS/REPAIRERS	2,434	2,541	2,900	112	620	101	466	19%
85705	DATA PROCESSING EQUIPMENT REPAIRERS	1,113	1,183	1,392	78	358	65	279	25%
85708	ELECTRONIC HOME ENTERTAINMENT EQUIPMENT REPAIRERS	590	626	779	36	235	40	189	32%
85711	ELECTRIC HOME APPLIANCE & POWER TOOL REPAIRERS	677	714	894	40	302	49	217	32%
85714	ELECTRIC MOTOR, TRANSFORMER, & RELATED REPAIRERS	699	735	897	48	281	55	198	28%
85717	ELECTRONICS REPAIRERS, COMMERCIAL & IND. EQUIP.	966	1,014	1,362	56	466	98	396	41%
85723	ELECTRICAL POWERLINE INSTALLERS & REPAIRERS	414	434	341	20	40-	-15	73-	-18%
85726	STATION INSTALLERS & REPAIRERS, TELEPHONE	495	515	580	24	116	20	85	17%
85728	ELECTRICAL INSTALLERS/REPRS., TRANSPORT. EQUIP.	*	*	*	3	13	2	11	*
85799	ALL OTHER ELECTRICAL MECHS./INSTALLERS/REPAIRERS	483	507	596	28	156	38	113	23%
85902	HEATING, AIR COND., & REFRIG. MECHS. & INSTALLERS	3,289	3,451	4,267	212	1,359	266	978	30%
85905	PRECISION INSTRUMENT REPAIRERS	1,160	1,230	1,603	80	569	106	443	38%
85908	ELECTROMEDICAL & BIOMEDICAL EQUIPMENT REPAIRERS	75	77	89	3	19	3	14	19%
85911	ELECTRIC METER INSTALLERS & REPAIRERS	97	99	114	2	21	2	17	18%
85914	CAMERA & PHOTOGRAPHIC EQUIPMENT REPAIRERS	34	35	41	1	10	1	7	21%
85917	WATCHMAKERS	67	72	91	3	29	3	24	36%
85921	MUSICAL INSTRUMENT REPAIRERS & TUNERS	46	49	60	3	18	3	14	30%
85923	LOCKSMITHS & SAFE REPAIRERS	191	203	252	13	82	16	61	32%
85926	OFFICE MACHINE & CASH REGISTER SERVICERS	876	919	1,076	55	301	56	200	23%
85928	MECHANICAL CONTROL & VALVE INSTALLERS & REPAIRERS	91	94	109	0	19	0	18	20%
85932	ELEVATOR INSTALLERS & REPAIRERS	129	133	161	7	47	9	32	25%
85935	RIGGERS	122	124	55	4	56-	-15	67-	-55%
85938	INSTALLERS/REPAIRERS - MANUFACTURED BUILDINGS	259	269	326	11	93	12	67	26%
85944	GAS APPLIANCE REPAIRERS	76	82	101	3	32	3	25	33%
85947	COIN & VENDING MACHINE SERVICERS & REPAIRERS	368	384	459	19	129	23	91	25%
85951	BICYCLE REPAIRERS	139	147	179	10	56	11	40	29%
85953	TIRE REPAIRERS & CHANGERS	948	981	1,127	50	305	54	179	19%
85956	MENDERS - GARMENTS, LINENS, & RELATED	83	88	103	3	31	4	20	24%
85999	ALL OTHER MECHANICS, INSTALLERS, & REPAIRERS	3,575	3,764	4,697	209	1,508	276	1,122	31%
87102	CARPENTERS	12,369	13,182	15,886	1,120	5,577	1,123	3,517	28%
87105	CEILING TILE INSTALLERS/ACCOUSTICAL CARPENTERS	236	244	297	3	46	8	61	26%
87108	DRYWALL INSTALLERS	2,171	2,267	2,770	115	735	150	599	28%
87111	TAPERS	1,604	1,664	2,029	102	666	138	425	26%
87114	LATHERS	893	925	1,119	41	306	62	226	25%
87202	ELECTRICIANS	7,689	8,101	9,238	543	2,464	540	1,549	20%
87302	BRICK MASONS	2,468	2,578	3,080	142	865	181	612	25%
87305	STONE MASONS	214	233	299	21	107	19	85	40%

* OCCUPATIONS WITH EMPLOYMENT OF LESS THAN 25

OCCUPATIONS IN OES CODE ORDER

OES CODE	OES OCCUPATIONAL TITLE	EMPLOYMENT			JOB OPPORTUNITIES			GROWTH	
		1986	1987	1991	1986-87	1986-91	1990-91	1986-91	
87308	HARD TILE SETTERS	517	544	676	36	212	41	159	31%
87311	CONCRETE & TERRAZZO FINISHERS	3,166	3,360	4,130	232	1,250	239	964	30%
87314	REINFORCING METAL WORKERS	313	326	388	17	119	22	75	24%
87317	PLASTERERS & STUCCO MASONS	1,349	1,394	1,688	58	430	88	339	25%
87402	PAINTERS & PAPERHANGERS - CONSTRUCT. & MAINTENANC	3,832	4,009	4,861	249	1,630	316	1,029	27%
87502	PLUMBERS, PIPEFITTERS, & STEAMFITTERS	5,248	5,547	6,707	397	2,134	410	1,459	28%
87505	PIPELAYING FITTERS	135	139	53	7	70-	-19	82-	-61%
87508	PIPELAYERS	877	976	1,062	114	312	58	185	21%
87511	SEPTIC TANK SERVICERS & SEWER PIPE CLEANERS	86	93	113	7	37	6	27	31%
87602	CARPET INSTALLERS	290	307	381	15	105	16	91	31%
87605	FLOOR LAYERS, EXC. CARPET, WOOD, & HARD TILES	86	92	117	5	34	5	31	36%
87608	FLOOR SANDING MACHINE OPERATORS	29	29	35	0	8	1	6	21%
87702	AIR HAMMER OPERATORS	153	166	202	12	72	11	49	32%
87705	PILE DRIVING OPERATORS	*	*	*	0	1-	0	1-	*
87708	PAVING, SURFACING, & TAMPING EQUIP. OPERS.	461	498	609	43	212	36	148	32%
87711	HIGHWAY MAINTENANCE WORKERS	1,446	1,506	1,717	86	476	80	271	19%
87714	RAIL-TRACK LAYING & MAINTENANCE EQUIP. OPERATORS	137	138	141	6	23	4	4	3%
87802	INSULATION WORKERS	798	825	994	28	236	47	196	25%
87805	SHEET METAL DUCT INSTALLERS	*	*	*	1	5	0	5	*
87808	ROOFERS	2,806	2,934	3,604	154	983	201	798	28%
87811	GLAZIERS	719	752	911	40	275	50	192	27%
87814	STRUCTURAL METAL WORKERS	855	902	1,007	47	227	51	152	18%
87817	FENCE ERECTORS	598	628	775	42	267	54	177	30%
87899	ALL OTHER CONSTRUCTION TRADES WORKERS	468	490	605	21	167	25	137	29%
87900	EXTRACTION & RELATED WORKERS - INCL. BLASTERS	151	160	204	8	64	13	53	35%
87902	EARTH DRILLERS, EXC. OIL & GAS	246	271	346	23	118	19	100	41%
87905	BLASTERS & EXPLOSIVES WORKERS	225	219	201	-2	9-	-3	24-	-11%
87908	ROCK SPLITTERS, QUARRY	1,856	1,930	2,160	112	561	99	304	16%
87911	ROTARY DRILL OPERATORS, OIL & GAS EXTRACTION	35	35	39	1	7	1	4	11%
87923	ROOF BOLTERS	54	51	45	1	2-	1	9-	-17%
87941	CONTINUOUS MINING MACHINE OPERATORS	33	31	27	1	2-	0	6-	-18%
87943	MINE CUTTING & CHANNELING MACHINE OPERATORS	85	82	77	2	3	0	8-	-9%
87949	ALL OTHER MINING MACHINE OPERATORS	33	33	31	1	2	0	2-	-6%
87989	ALL OTHER EXTRACTIVE WORKERS, EXC. HELPERS	38	48	76	9	42	7	38	100%
87999	ALL OTHER CONST. & EXTRACTIVE, EXC. HELPERS	590	620	780	35	243	46	190	32%
89000	PRECISION PRODUCTION OCCUPATIONS	177	186	220	9	62	12	43	24%
89102	TOOL & DIE MAKERS	743	790	1,026	64	432	78	283	38%
89105	PRECISION INSTRUMENT MAKERS	67	70	92	5	38	8	25	37%
89108	MACHINISTS	4,347	4,621	5,625	346	1,835	345	1,278	29%
89111	TOOL GRINDERS, FILERS, SHARPENERS (PRECISION)	268	290	370	18	133	20	102	38%
89114	PATTERN & MODEL MAKERS, METAL	*	*	*	0	4	0	3	*
89117	PRECISION LAYOUT WORKERS, METAL	146	157	187	11	54	9	41	28%
89123	JEWELERS & SILVERSMITHS	318	337	417	26	174	32	99	31%
89126	PRECISION HAND WORKERS, JEWELRY & RELATED	63	67	88	5	36	6	25	40%
89128	PRECISION ETCHERS & ENGRAVERS	*	*	*	0	7	1	6	*
89132	SHEET METAL WORKERS	2,821	3,074	3,760	177	1,093	206	839	29%
89135	BOILERMAKERS	287	308	279	23	30	19	8-	-3%

* OCCUPATIONS WITH EMPLOYMENT OF LESS THAN 25

OCCUPATIONS IN OES CODE ORDER

OES CODE	OES OCCUPATIONAL TITLE	EMPLOYMENT			JOB OPPORTUNITIES			GROWTH	
		1986	1987	1991	1986-87	1986-91	1990-91	1986-91	
89199	ALL OTHER PRECISION METAL WORKERS	200	212	273	16	111	20	73	37%
89300	PRECISION WOODWORKERS	*	*	*	0	7	1	5	*
89302	PATTERN & MODEL MAKERS, WOOD (EXC. CARPENTERS)	32	35	42	2	15	2	10	31%
89305	PATTERN MARKERS, WOOD	*	*	*	0	3	0	2	*
89308	WOOD MACHINISTS	425	453	526	36	162	23	101	24%
89311	CABINETMAKERS & BENCH CARPENTERS	1,685	1,782	2,175	123	669	124	490	29%
89314	FURNITURE FINISHERS	172	181	223	6	57	7	51	30%
89399	ALL OTHER PRECISION WOODWORKERS	113	122	155	9	57	9	42	37%
89502	FABRIC & APPAREL LAYOUT & PATTERNMAKERS	*	*	*	0	10	1	9	*
89505	CUSTOM TAILORS & SEWERS	468	495	635	37	268	50	167	36%
89508	UPHOLSTERERS	596	634	824	51	349	67	228	38%
89511	SHOE & LEATHER WORKERS & REPAIRERS - PRECISION	68	71	87	2	27	4	19	28%
89514	SPOTTERS, DRY CLEANING	93	99	126	8	54	10	33	35%
89517	PRESSERS, DELICATE FABRICS	194	208	265	16	105	20	71	37%
89521	PRECISION DYERS	*	*	*	1	6	1	4	*
89599	ALL OTHER PRECISION TEXTILE & APPAREL WORKERS	*	*	*	0	3	0	3	*
89702	PRECISION COMPOSITORS/TYPESETTERS/ARRANGERS	241	251	309	12	107	15	68	28%
89705	JOB PRINTERS	198	207	254	13	94	16	56	28%
89708	PRECISION LITHOGRAPHY & PHOTOENGRAVINNG WORKERS	414	429	521	17	133	24	107	26%
89711	BOOKBINDERS	43	44	56	2	21	2	13	30%
89799	ALL OTHER PRECISION PRINTING WORKERS	148	155	188	10	62	12	40	27%
89802	SLAUGHTERERS & BUTCHERS	183	181	180	4	17	4	3-	-2%
89805	BAKERS, MANUFACTURING	476	498	574	38	198	39	98	21%
89808	FOOD BATCHMAKERS	166	166	158	4	10	2	8-	-5%
89899	ALL OTHER PRECISION FOOD & TOBACCO WORKERS	67	72	86	4	28	4	19	28%
89902	PRECISION FOUNDRY MOLD & CORE MAKERS	153	147	134	3	8-	-3	19-	-12%
89905	PREC. MOLDERS/CASTERS, EXC. JEWELY & FOUNDRY	123	129	159	8	52	8	36	29%
89908	PRECISION PATTERN/MODEL MAKERS	*	*	*	0	0	0	0	*
89911	PRECISION DETAIL DESIGN DECORATORS & PAINTERS	169	179	226	7	74	12	57	34%
89914	PRECISION PHOTOGRAPHIC PROCESS WORKERS	99	105	138	6	54	9	39	39%
89917	PRECISION OPTICAL GOODS WORKERS	941	998	1,338	93	620	133	397	42%
89921	PRECISION DENTAL LABORATORY TECHNICIANS	488	507	603	31	195	39	115	24%
89923	MEDICAL APPLIANCE MAKERS	134	139	165	9	53	11	31	23%
89926	GEM & DIAMOND WORKERS	*	*	*	1	12	2	10	*
89999	ALL OTHER PRECISION WORKERS	2,336	2,442	2,875	120	785	131	539	23%
91000	MACHINE SETTERS, OPERATORS, & TENDERS	343	363	462	27	162	34	119	35%
91102	SAWING MACH. TOOL SET UP OPERS. - MTL. & PLAST.	142	154	188	10	62	7	46	32%
91105	LATHE/TURNING MACH. SET-UP OPERS. - MTL. & PLAST.	430	463	566	39	207	34	136	32%
91108	DRILL./BORING MACH. SET-UP OPERS. - MTL. & PLAST.	207	221	272	16	90	11	65	31%
91111	MILL./PLANING MACH. SET-UP OPERS. - MTL. & PLAST.	198	216	267	19	103	16	69	35%
91114	GRIND. & BUFF. MACH. SET-UP OPERS. - METAL/PLAST.	487	524	625	38	183	33	138	28%
91117	MACH. TOOL CUTTING OPERS./TENDERS - MTL. & PLAST.	1,576	1,685	2,047	116	577	103	471	30%
91302	PUNCHING MACH. SET-UP OPERS. - METAL & PLASTIC	221	235	290	10	99	15	69	31%
91305	PRESS & BRAKE MACH. SET-UP OPERS. - METAL/PLAST.	205	219	258	13	77	12	53	26%
91308	SHEAR/SLITTER MACH. SET-UP OPERS. - METAL & PLAST	104	109	124	6	29	4	20	19%
91311	EXTRUD./DRAWING MACH. SET-UP OPERS. - MTL. & PLAST	503	486	409	-5	31-	-6	93-	-19%
91314	ROLLING MACH. SET-UP OPERS. - METAL & PLASTIC	56	60	71	3	21	4	15	27%

* OCCUPATIONS WITH EMPLOYMENT OF LESS THAN 95

OCCUPATIONS IN OES CODE ORDER

OES CODE	OES OCCUPATIONAL TITLE	EMPLOYMENT			JOB OPPORTUNITIES			GROWTH	
		1986	1987	1991	1986-87	1986-91	1990-91	1986-91	
91317	FORGING MACH. SET-UP OPERS. - METAL & PLASTIC	26	28	42	1	18	3	16	62%
91321	MACHINE FORMING OPERS./TENDERS - METAL & PLASTIC	860	915	1,178	69	440	82	318	37%
91502	NUMERICAL CONTROL MACH. TOOL OPERS.-METAL/PLAST.	538	583	711	53	267	46	173	32%
91505	COMBINATION MACH. TOOL SET-UP OPERS.-MTL./PLAST.	306	331	443	28	172	33	137	45%
91508	COMBINATION MACHINE TOOL OPERS.-METAL & PLASTIC	376	390	579	27	263	52	203	54%
91702	WELDING MACHINE SETTERS & SET-UP OPERATORS	250	267	335	20	111	16	85	34%
91705	WELDING MACHINE OPERATORS & TENDERS	273	292	353	21	118	19	80	29%
91708	SOLDERING/BRAZING MACH. SETTERS & SET-UP OPERS.	*	*	*	0	3	0	3	*
91711	SOLDERING & BRAZING MACHINE OPERS. & TENDERS	61	65	87	4	34	5	26	43%
91714	METAL FABRICATORS, STRUCTURAL METAL PRODUCTS	664	699	856	41	256	48	192	29%
91902	PLASTIC MOLDING & CASTING MACHINE SET-UP OPERS.	249	262	328	14	107	18	79	32%
91905	PLASTIC MOLDING & CASTING MACH. OPERS. & TENDERS	823	855	1,039	51	359	73	216	26%
91908	METAL MOLDING/COREMAKING/CASTING MACH. SET-UP	40	41	50	2	13	1	10	25%
91911	METAL MOLDING/COREMAKING/CASTING MACH. OPERS.	41	40	65	0	30	6	24	59%
91914	FOUNDRY MOLD ASSEMBLY & SHAKEOUT WORKERS	56	54	41	1	9-	-2	15-	-27%
91917	ELECTROLYTIC COATING SET-UP OPERS.-METAL/PLAST.	332	355	475	26	192	39	143	43%
91921	ELECTROLYTIC COATING MACH. OPERS. - METAL/PLASTIC	260	281	343	22	121	21	83	32%
91923	NONELECTROLYTIC COATING MACH. SET-UP -MTL./PLAST	26	27	38	0	12	1	12	46%
91926	NONELECTROLYTIC COATING MACH. OPERS.-MTL./PLAST.	69	76	91	5	32	4	22	32%
91928	HEATING EQUIP. SET-UP OPERS. - METAL & PLASTIC	31	35	48	1	20	2	17	55%
91932	HEAT TREATING/TEMPERING MACH. OPERS.-MTL./PLAST.	142	152	195	10	74	14	53	37%
91935	FURNACE OPERATORS & TENDERS	212	232	327	22	145	29	115	54%
91938	HEATERS, METAL & PLASTIC	*	*	*	0	1-	0	1-	*
92197	ALL OTHER METAL & PLASTIC MACHINE SET-UP OPERS.	66	69	88	2	27	3	22	33%
92198	ALL OTHER METAL & PLASTIC MACHINE OPERATORS	567	597	764	38	289	58	197	35%
92302	SAWING MACHINE SETTERS & SET UP OPERATORS	25	28	34	1	12	2	9	36%
92305	HAND SAWYERS	33	33	36	0	6	0	3	9%
92308	SAWING MACHINE OPERATORS & TENDERS	545	577	702	36	233	41	157	29%
92311	WOODWORKING MACHINE SET-UP OPERS., EXC. SAWING	203	216	265	16	89	16	62	31%
92314	WOODWORKING MACH. OPERS. & TENDERS, EXC. SAWING	392	419	508	27	168	29	116	30%
92510	PRINTING PRESS MACHINE SETTERS & SET-UP OPERS.	55	57	83	3	35	7	28	51%
92512	OFFSET LITHOGRAPHIC PRESS SETTERS & SET-UP OPERS	554	577	708	39	265	51	154	28%
92515	LETTER PRESS SETTERS & SET UP OPERATORS	417	435	530	23	155	30	113	27%
92519	ALL OTHER PRINTING PRESS SET-UP OPERATORS	*	*	*	0	4	0	3	*
92521	PHOTOENGRAVING & LITHOGRAPHING PHOTOGRAPHERS	189	197	243	6	62	8	54	29%
92522	SPECIALITY MATLS. PRINTING MACH. SET-UP OPERS.	33	34	52	2	24	4	19	58%
92524	SCREEN PRINTING MACH. SETTERS & SET-UP OPERS.	140	147	222	12	125	25	82	59%
92525	BINDERY MACHINE SETTERS & SET-UP OPERATORS	147	153	186	9	68	14	39	27%
92529	ALL OTHER PRINTING RELATED SETTERS & SET-UP OPERS	177	184	205	6	33	6	28	16%
92541	TYPESETTING & COMPOSING MACH. OPERS. & TENDERS	342	356	441	29	210	36	99	29%
92543	PRINTING PRESS MACHINE OPERATORS & TENDERS	809	850	1,060	48	361	64	251	31%
92545	PHOTOENGRAVING & LITHOGRAPHING MACHINE OPERS.	173	184	240	12	92	17	67	39%
92546	BINDERY MACHINE OPERATORS	422	440	540	24	176	34	118	28%
92549	ALL OTHER PRINTING & RELATED MACHINE OPERS.	96	100	120	4	39	5	24	25%
92702	TEXTILE MACHINE SETTERS & SET-UP OPERATORS	*	*	*	0	6	0	4	*
92705	TEXTILE MACH. OPERS. - WINDING/WEAVING/CUTTING	235	252	321	23	128	26	86	37%
92714	TEXTILE BLEACHING & DYEING MACH. OPERS. & TENDERS	89	92	105	6	34	5	16	18%

* OCCUPATIONS WITH EMPLOYMENT OF LESS THAN 25

OCCUPATIONS IN OES CODE ORDER

OES CODE	OES OCCUPATIONAL TITLE	EMPLOYMENT			JOB OPPORTUNITIES			GROWTH	
		1986	1987	1991	1986-87	1986-91	1990-91	1986-91	
92717	SEWING MACHINE OPERATORS, GARMENT	2,647	2,925	3,564	346	1,401	258	917	35%
92721	SEWING MACHINE OPERATORS, NON-GARMENT	913	980	1,232	84	474	87	319	35%
92723	SHOE SEWING MACHINE OPERATORS & TENDERS	34	36	43	2	13	2	9	26%
92726	LAUNDRY & DRYCLEANING MACH. OPERS., EXC. PRESSING	2,249	2,383	3,009	170	1,040	208	760	34%
92728	PRESSING MACHINE OPERS. - TEXTILE & GARMENTS	547	584	749	47	298	57	202	37%
92902	ELECTRONIC SEMICONDUCTOR PROCESSORS	2,945	3,080	4,706	214	2,250	524	1,761	60%
92905	MOTION PICTURE PROJECTIONISTS	137	146	185	12	90	15	48	35%
92908	PHOTOGRAPHIC PROCESSING MACH. OPERS. & TENDERS	538	574	751	46	297	62	213	40%
92911	TIRE BUILDING MACHINE OPERATORS	*	*	*	0	1	0	1	*
92914	PAPER GOODS MACHINE SETTERS & SET-UP OPERATORS	151	157	190	7	59	10	39	26%
92917	COOKING MACHINE OPERATORS & TENDERS, FOOD	58	59	58	0	6	1	0	0%
92921	ROASTING, BAKING, & DRYING MACH. OPERS., FOOD	117	115	109	2	6	2	8-	-7%
92923	FURNACE, KILN, OVEN, DRIER, OR KETTLE OPERS.	264	272	316	12	87	13	52	20%
92926	BOILER OPERATORS & TENDERS, LOW PRESSURE	176	182	215	4	57	8	39	22%
92928	COOLING & FREEZING EQUIP. OPERS. & TENDERS	*	*	*	0	2-	0	3-	*
92932	DAIRY PROCESSING EQUIP. OPERS., INCL. SETTERS	69	68	66	2	7	1	3-	-4%
92935	CHEMICAL EQUIPMENT CONTROLLERS & OPERATORS	79	86	97	5	27	3	18	23%
92938	CHEMICAL EQUIPMENT TENDERS	30	41	47	3	14	2	8	24%
92941	CUTTING & SLICING MACH. SETTERS & SET-UP OPERS.	*	*	*	0	7	0	6	*
92944	CUTTING & SLICING MACHINE OPERATORS & TENDERS	334	346	394	10	97	13	60	18%
92947	PAINTERS, TRANSPORTATION EQUIPMENT	488	513	624	35	202	38	136	28%
92951	COATING & PAINTING MACHINE SET-UP OPERATORS	262	280	381	15	153	20	119	45%
92953	COATING, PAINTING, & SPRAYING MACHINE OPERS.	469	493	601	27	186	29	132	28%
92956	CEMENTING & GLUING MACHINE OPERATORS & TENDERS	141	149	190	7	67	12	49	35%
92958	CLEANING, WASHING, & PICKLING EQUIPMENT OPERS.	102	108	118	6	26	3	16	16%
92962	SEPARATING & FILTERING MACHINE OPERATORS	279	289	332	19	88	17	53	19%
92965	CRUSHING, GRINDING, & MIXING MACHINE OPERATORS	2,020	2,141	2,597	151	853	160	577	29%
92968	EXTRUDING/FORMING/PRESSING MACH. SET-UP OPERS.	161	166	198	8	59	11	37	23%
92971	EXTRUDING, FORMING, & PRESSING MACHINE OPERATORS	1,210	1,273	1,589	86	548	106	379	31%
92974	PACKAGING & FILLING MACHINE OPERS. & TENDERS	1,639	1,694	1,954	85	532	98	315	19%
92997	ALL OTHER MACHINE SETTERS & SET-UP OPERATORS	649	674	795	42	232	50	146	22%
92998	ALL OTHER MACHINE OPERATORS & TENDERS	5,127	5,328	6,186	310	1,765	351	1,059	21%
93000	HAND WORKING, INC. ASSEMBLERS & FABRICATORS	263	279	348	20	122	22	85	32%
93102	AIRCRAFT ASSEMBLERS - PRECISION	431	485	649	72	337	68	218	51%
93105	MACHINE BUILDERS & ASSEMBLERS	764	818	1,044	67	372	73	280	37%
93108	FITTERS, STRUCTURAL METAL - PRECISION	242	259	311	19	103	17	69	29%
93111	ELECTROMECH. EQUIP. ASSEMBLERS - PRECISION	1,817	2,028	2,866	286	1,555	322	1,049	58%
93114	ELECTRICAL/ELECTRONIC EQUIP. ASSEMBLERS - PREC.	9,975	10,587	15,414	1,058	8,166	1,848	5,439	55%
93117	WATCH/CLOCK/CHRONOMETER ASSEMBLERS & ADJUSTERS	*	*	*	0	4	0	3	*
93197	ALL OTHER PRECISION ASSEMBLERS, METAL	208	225	263	15	76	11	61	29%
93902	MACHINE ASSEMBLERS	556	602	755	59	284	54	199	36%
93905	ELECTRICAL & ELECTRONIC ASSEMBLERS	2,597	2,840	3,959	308	1,789	370	1,362	52%
93908	COIL WINDERS, TAPERS, & FINISHERS	202	220	314	19	141	25	112	55%
93911	GLAZIERS, MANUFACTURING	77	81	98	3	27	3	21	27%
93914	WELDERS & CUTTERS	2,865	3,086	3,602	236	1,038	173	737	26%
93917	SOLDERERS & BRAZERS	62	66	82	2	25	3	20	32%
93921	PRESSERS, HAND	158	176	233	16	97	16	75	47%

* OCCUPATIONS WITH EMPLOYMENT OF LESS THAN 25

OCCUPATIONS IN OES CODE ORDER

OES CODE	OES OCCUPATIONAL TITLE	EMPLOYMENT			JOB OPPORTUNITIES			GROWTH	
		1986	1987	1991	1986-87	1986-91	1990-91	1986-91	
93923	SEWERS, HAND	37	39	48	1	13	1	11	30%
93926	CUTTERS & TRIMMERS, HAND	113	122	154	5	51	5	41	36%
93928	PORTABLE MACHINE CUTTERS	29	33	43	2	16	1	14	48%
93932	CARPET CUTTERS, DIAGRAMMERS, & SEAMERS	50	51	62	2	18	3	12	24%
93935	CANNERY WORKERS	92	91	89	2	7	2	3-	-3%
93938	MEAT, POULTRY, & FISH CUTTERS - HAND	90	91	89	1	9	2	1-	-1%
93941	METAL POURERS & CASTERS, BASIC SHAPES	35	36	39	0	5	1	4	11%
93944	MOLDERS & CASTERS, HAND	229	235	270	7	65	11	41	18%
93947	PAINTING, COATING, & DECORATING WORKERS, HAND	274	288	370	12	123	17	96	35%
93951	ENGRAVING & PRINTING WORKERS, HAND	62	65	87	4	29	5	25	40%
93953	GRINDING & POLISHING WORKERS, HAND	380	403	514	28	184	32	134	35%
93956	ASSEMBLERS/FABRICATORS -EXC. MACH., ELECT., PRECI	5,464	5,751	7,444	424	2,794	585	1,980	36%
93999	ALL OTHER HAND WORKERS	3,352	3,525	4,339	238	1,461	292	987	29%
95000	PLANT & SYSTEM OCCUPATIONS	33	35	46	2	17	2	13	39%
95002	WATER & LIQUID WASTE TREATMENT PLANT/SYSTEM OPERS	787	817	932	29	189	24	145	18%
95008	CHEMICAL PLANT & SYSTEM OPERATORS	*	*	*	0	3	0	2	*
95021	POWER GENERATING PLANT OPERS., EXC. AUX. EQUIP.	242	253	290	13	82	13	48	20%
95023	AUXILIARY EQUIPMENT OPERATORS, POWER	266	279	326	19	104	18	60	23%
95026	POWER REACTOR OPERATORS	228	241	287	12	81	13	59	26%
95028	POWER DISTRIBUTORS & DISPATCHERS	*	*	*	1	4	0	2	*
95032	STATIONARY ENGINEERS	603	633	730	33	195	29	127	21%
95099	ALL OTHER PLANT & SYSTEM OPERATORS	180	197	234	13	77	10	54	30%
97102	TRUCK DRIVERS, HEAVY OR TRACTOR TRAILER	9,614	10,273	12,551	779	3,842	728	2,937	31%
97105	TRUCK DRIVERS, LIGHT - INCL. DELIVERY & ROUTE	3,970	4,195	5,223	219	1,574	273	1,253	32%
97108	BUS DRIVERS	4,424	4,631	5,398	335	1,720	336	974	22%
97111	BUS DRIVERS, SCHOOL	147	155	194	10	67	11	47	32%
97114	TAXI DRIVERS & CHAUFFEURS	330	350	439	28	166	31	109	33%
97117	DRIVER/SALES WORKERS	9,065	9,500	11,347	548	3,068	599	2,282	25%
97199	ALL OTHER MOTOR VEHICLE OPERATORS	4,829	5,048	5,971	247	1,555	279	1,142	24%
97305	LOCOMOTIVE ENGINEERS	140	147	178	12	76	13	38	27%
97308	RAIL YARD ENGINEERS, DINKEY OPERS, & HOSTLERS	98	102	120	7	45	7	22	22%
97311	LOCOMOTIVE FIRERS	60	66	76	1	18	2	16	27%
97317	RAILROAD BRAKE, SIGNAL, & SWITCH OPERATORS	306	321	387	21	118	20	81	26%
97399	ALL OTHER RAIL VEHICLE OPERATIVES & CONTROLLERS	40	42	42	0	4	0	2	5%
97508	PILOTS, SHIP	*	*	*	1	5	1	3	*
97702	AIRCRAFT PILOTS & FLIGHT ENGINEERS	623	665	835	42	253	48	212	34%
97805	SERVICE STATION ATTENDANTS	4,925	5,060	5,643	246	1,405	267	718	15%
97808	PARKING LOT ATTENDANTS	161	170	219	11	74	13	58	36%
97899	ALL OTHER TRANSPORTATION & RELATED WORKERS	164	172	185	9	40	5	21	13%
97905	TANK CAR & TRUCK LOADERS	*	*	*	0	0	0	0	*
97908	OIL PUMPERS, EXC. WELL HEAD	*	*	*	1	4	0	4	*
97914	MAIN LINE STATION ENGINEERS	*	*	*	0	4	0	4	*
97917	GAS PUMPING STATION OPERATORS	94	99	117	7	36	6	23	24%
97921	GAS COMPRESSOR OPERATORS	*	*	*	0	0	0	0	*
97923	EXCAVATING & LOADING MACHINE OPERATORS	802	885	1,053	88	356	52	251	31%
97926	DRAGLINE OPERATORS	36	38	47	1	15	2	11	31%
97932	LOADING MACHINE OPERATORS, UNDERGROUND MINING	384	409	452	33	79	22	58	15%

* OCCUPATIONS WITH EMPLOYMENT OF LESS THAN 50

OCCUPATIONS IN OES CODE ORDER

OES CODE	OES OCCUPATIONAL TITLE	EMPLOYMENT			JOB OPPORTUNITIES			GROWTH	
		1986	1987	1991	1986-87	1986-91	1990-91	1986-91	
97935	SHUTTLE CAR OPERATORS	35	33	29	0	2-	0	6-	-17%
97938	GRADER, DOZER, & SCRAPER OPERATORS	707	757	882	59	269	46	175	25%
97941	HOIST & WINCH OPERATORS	180	187	212	3	43	3	32	18%
97944	CRANE & TOWER OPERATORS	352	366	427	18	99	18	75	21%
97947	INDUSTRIAL TRUCK & TRACTOR OPERATORS	2,568	2,694	3,207	131	835	140	639	25%
97951	CONVEYOR OPERATORS & TENDERS	330	359	434	30	148	24	104	32%
97953	PUMP OPERATORS	240	249	268	9	56	8	28	12%
97956	OPERATING ENGINEERS	2,855	3,196	3,733	382	1,229	217	878	31%
97989	ALL OTHER TRANSPORT. & MOVING EQUIP. OPERS.	536	570	748	38	265	47	212	40%
97999	ALL OTHER MATERIAL MOVING EQUIPMENT OPERATORS	2,187	2,274	2,601	114	638	112	414	19%
98000	HELPERS, LABORERS, & MATERIAL MOVERS, HAND	87	91	110	4	33	6	23	26%
98102	MECHANIC & REPAIRER HELPERS	699	745	904	45	291	48	205	29%
98300	CONSTRUCTION & EXTRACTION WORKER HELPERS	492	526	621	39	193	33	129	26%
98311	HELPERS - BRICK & STONE MASONS	2,145	2,243	2,749	114	758	150	604	28%
98312	HELPERS - CARPENTERS & RELATED	3,268	3,566	4,468	313	1,443	265	1,200	37%
98313	HELPERS - ELECTRICIANS & POWERLINE INSTALLERS	1,104	1,153	1,397	73	456	92	293	27%
98314	HELPERS - PAINTERS, PAPERHANGERS, & PLASTERERS	964	1,015	1,251	51	353	66	287	30%
98315	HELPERS - PLUMBERS, PIPEFITTERS, & STEAMFITTERS	1,454	1,513	1,839	71	489	96	385	26%
98316	HELPERS - ROOFERS	478	505	628	29	183	35	150	31%
98319	HELPERS -ALL OTHER CONSTRUCTION TRADES	2,575	2,692	3,140	153	907	158	565	22%
98323	HELPERS - EXTRACTIVE WORKERS	40	40	48	0	9	0	8	20%
98502	MACHINE FEEDERS & OFFBEARERS	1,066	1,128	1,349	66	424	68	283	27%
98700	FREIGHT, STOCK, & MATERIAL MOVERS, HAND	2,353	2,478	3,041	133	993	170	688	29%
98705	REFUSE COLLECTORS	653	689	822	37	212	36	169	26%
98799	ALL OTHER FREIGHT, STOCK, & MATERIAL MOVERS, HAND	4,159	4,394	5,320	345	1,797	366	1,161	28%
98902	HAND PACKERS & PACKAGERS	2,143	2,286	2,827	175	987	179	684	32%
98905	VEHICLE WASHERS & EQUIPMENT CLEANERS	2,649	2,788	3,417	196	1,161	230	768	29%
98999	ALL OTHER HELPERS & LABORERS	25,300	26,911	32,810	2,170	11,250	2,186	7,510	30%
	******** STATE	1,258,241		1,612,143		588,382		353,902	
	******** TOTALS		1,325,823		100,919		114,628		28%
* OCCUPATIONS WITH EMPLOYMENT OF LESS THAN 25									

ERIC Clearinghouse for Junior Colleges
JUL 10 1987